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A Seven Room Home of Stucco on Concrete Blocks					

AN INVITATION TO YOU

The AMERICAN BUILDER cordially invites and urges you to enjoy the privileges and benefits of its Correspondence Department. Any phase of any building question may be profitably and instructively discussed in this department. If your problem is a knotty or technical one submit it to the Correspondence Department and secure the benefits of the opinions of other experienced builders. It's a "give" as well as a "take" department, and you are asked to relate your achievements and tell how you have conquered difficulties as well as to ask for information and advice. Rough drawings are desired, for they make clear involved points. We will gladly work over the rough drawings to meet publication requirements. The Correspondence Department is your department. Use it freely and frequently.

We have interesting booklets for
Architects, Contractors and Dealers.
Please tell which booklet you want.



Home at Forest Heights, New Rochelle, N. Y.
Builder—Phillip Colton, 139 Mayflower Ave., New Rochelle, N. Y.
Lumber Dealer—J. A. Mahlstadt Lbr. & Coal Co., New Rochelle-Rye-Mamaroneck, N. Y.

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Ornate Entrance in the Aztec Style, Residence of Charles H. Schweppe, Lake Forest, Illinois. Frederick W. Perkins, Architect, Boston, Mass.



An Entrance Thoroughly in Keeping with the Architecture of Colonial New Orleans, in This Fine House at 2710 Lake View Avenue, Chicago. Designed by David Adler, Jr., Architect, Chicago.



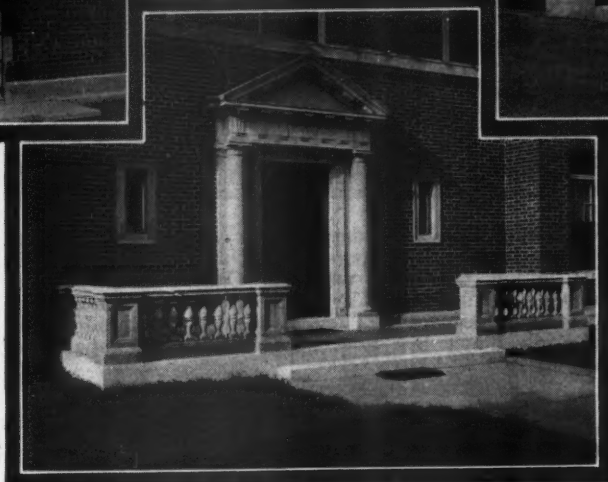
This Strikingly Beautiful Entrance to the Home of S. S. Hutchinson, Sheridan Road, Chicago, Suggests Moorish Architecture. Designed by Tallmadge & Watson, Architects, Chicago.



This Is the Entrance to Lochby Court, an Apartment Building at 3200 Sheridan Road, Chicago. Its pure Georgian architecture is admirable. By Schmidt, Garden & Martin, Architects, Chicago.



Above; Entrance to Home of Thomas E. Donnelly, Lake Forest, Illinois, an Example of Modern French Architecture. By Howard Shaw, Architect, Chicago.



To Left; Entrance and Plaisance in Pure Doric Design in a St. Louis Residence. Designed by La Beaume & Klein, Architects, St. Louis.

WHERE FINE ARCHITECTURE INVITES ENTRANCE

Story of a Successful Builder

How the Head of a Big Construction Company Starting at the Bottom of the Ladder as a Building Trades Worker, D. F. Anderson, of Anderson and Cowie, Has Risen to the Head of the Profession

TODAY, a big builder in a big city, able to finance projects that run into millions, D. F. Anderson, of Anderson and Cowie, literally fought his way up from the ranks. He laughs about it now, but it was grim enough reality at the beginning. He found life among the building trades workers, in a big city, pretty rough and that a man had to be able to take care of himself with his fists if need be.

And so this young carpenter, at the beginning of his career some forty-two years ago, went to a boxing instructor and took lessons in boxing. Then, equipped with courage and skill, he made many a bully feel the weight of his fists. And many a fellow worker was protected by him from the unfair and brutal tactics of the bullies, who would "run them off the job" or make life miserable for them while on it.

As you look at this well dressed busy executive seated at a mahogany desk in his private office, it is hard to realize that he has risen from the ranks of the workers. Nor is he the type of man commonly associated with hard won success. Instead of being hard and grasping, he is the acme of generosity and kindness, well indicated by his clear-cut features and kindly eyes. Indeed, most of his associates and employees fear that the generosity of "D. F.," as they call him, will overstep the limits of good business. But "D. F." is a stout believer in human nature. He hates crooks and has thrown several out of his office who approached him with shady schemes. Nevertheless, he maintains his faith in human nature and the inherent honesty of the average individual.

This is well illustrated by several incidents after he had become a builder and owner on his own account.

He put up some twenty flat buildings in one Chicago neighborhood and had the mortgages safely locked in his vault. That was before the days when second mortgages were generally sold or put up as collateral for loans; and much of his capital was tied up in these buildings. Still, he did not press those who got behind in their payments. But some of them got into difficulties and expected harsh treatment. One man came into D. F. Anderson's former office and broke down

completely when he tried to tell his story. He was a skilled mechanic but had been out of work for some time and was several months behind in his payments.

"How much longer will you give me before you put me out?" he wanted to know.

"You won't be put out," said "D. F." "Get that out of your mind."

Slipping fifty dollars into an envelope, he sealed it and handed it to him.

"Take this home, buy some groceries for your family and come back when you need more."

This man *did* have to come back and he got another loan of the same amount. He declared this would be the last time and that he'd commit suicide before he'd come back again. But that contingency never arose. Cheered and comforted by kindly words, he went out with renewed courage

to look for work. A few days later he secured the best job ever offered him. Moreover, he repaid the loans, and the overdue interest, a little at a time, until he was again square with the world.

On another occasion, there was a dry eyed woman with defiance in her voice who demanded to know when *she* would be put out. They were behind in their payments. Her husband was sick—would probably die. Finally she, too, was induced to accept a loan.



D. F. Anderson, of Anderson & Cowie, Builders, Started as a Craftsman at the Age of 20 and Is Now Head of a Big Construction Company with Its Own Auxiliary Sales Company and Financially Interested in a Bond and Mortgage Company. They have put up hundreds of single dwellings but now specialize on big apartment buildings.



These Attractive Dwellings Were Built by Anderson & Cowie in One of Chicago's North Shore Suburbs from Plans by Robert L. Kane, architect. Floor plans are shown below of the house in the center of the picture which embodies the best traditions in Colonial design in plan and exterior.

And when she became a widow, "D. F." sold the building for her to such good advantage that she received a thousand dollars more than the original investment.

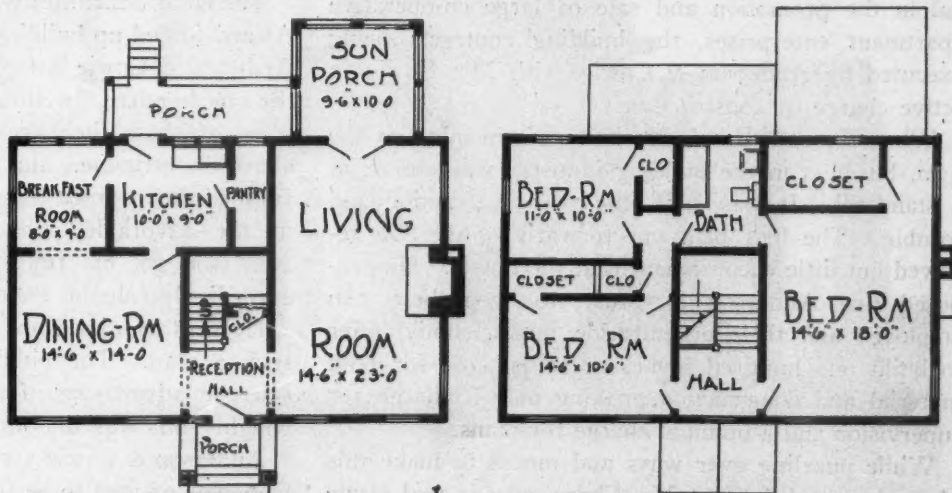
Mr. Anderson's associates in the office prophesied trouble. "Your other buyers will get careless about their payments when they hear how easy you are," they said. But they didn't; instead, sympathetic neighbors heard and came to pay what was due and made pre-payments as far as they could ahead, merely to show their confidence and appreciation. And so D. F. Anderson's faith in human nature was vindicated.

D. F. Anderson was born in Chicago sixty-two years ago in a house which stood on the site of the present Dearborn Railroad Station, but was burned in the big Chicago fire of 1873. At the age of twenty, he entered the building field, and rose from apprentice to carpenter and from foreman to contractor. Eventually, he started building small homes, mostly bungalows and two-flat buildings, as well as houses in the suburbs. For forty years his business as a builder has grown in magnitude. Builders who read this can appreciate the arduous work and intricate detail of these many enterprises. Time has touched but lightly this man of affairs. He is still keen, active and vigorous, but now prefers the larger field of bigger buildings, mostly co-operative apartments, housing as many as forty-eight families in the most modern

comfort—even luxury. Mr. Anderson claims there is less detail in these larger enterprises and that while considerable capital is required, it is not tied up so long. As they say in department stores, "the turnover is quicker."

"We find," said Mr. Anderson, "that we can provide better housing in the co-operative buildings and in better neighborhoods for people of limited means. By far the greater number of those who come here have but a limited amount with which to build. If they build individual homes, they must select unattractive sites, so far out that transportation becomes a burden. Nor can they build, at present costs, the kind of homes they want or which are adequate in size or comfort. By putting these people into co-operative apartments, we give them fine locations, and ultra-modern finish and equipment at a cost within their reach."

Anderson & Cowie entered the co-operative field



FIRST FLOOR PLAN SECOND FLOOR PLAN

Conveniently Arranged Rooms of Ample Size Are Shown by These Floor Plans of Center House in Illustration Above.



A six-room brick bungalow built by Anderson & Cowie from Plans of Robert L. Kane, Architect. This is especially adapted to narrow city lots. The plan is convenient and provides grade entrance at the rear to either kitchen or basement. This is but one of the designs which the builders have found extremely popular.

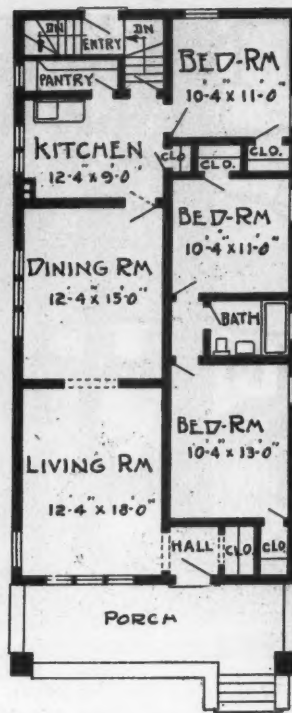
several years ago. The promotion and sale of these apartments and much of the second-mortgage financing is handled through two subsidiary companies—the Andridge Company and the Hamilton Bond and Mortgage Company, organized largely through the initiative and effort of Mr. Anderson's eldest son, Frank H. Anderson.

There is an interesting story in connection with this son's entry into the business. He had been employed in the office in various capacities between high school and college. Upon finishing his course at the University of Chicago, where, in his senior year, he edited the University magazine, "Commerce and Administration," his father wanted him to come into the business. But the young man objected to coming in unless he had a real job, one where he would be of genuine service and which would give him a real opportunity. So his father said, "All right, come in and make your own job."

Ultimately, it was the son who inaugurated the Andridge Company, to handle sales, and the Hamilton Bond and Mortgage Company to finance second mortgages. These companies have been eminently successful in the promotion and sale of large co-operative apartment enterprises, the building contracts being executed by Anderson & Cowie, with Mr. Cowie in active charge of construction.

When the son, Frank H., became a member of the firm, business in the building industry was almost at a standstill. It was 1921, the year of reaction and trouble. The first plan put forward by the son received but little encouragement at the outset. He proposed that Anderson & Cowie, to keep their men employed and their organization intact, should offer to build one hundred homes at actual cost for both material and construction, making only a charge for supervision and a nominal charge for plans.

While puzzling over ways and means to make this idea successful, he met Mr. Chase, who is real estate editor of the "Chicago Tribune" and a personal friend. Chase demanded to know what the trouble was and,



Floor Plan of Bungalow at the Left.

upon securing an inkling of it, he insisted that his friend should accompany him to lunch and tell him all about it. Upon conclusion of the recital, Chase became enthusiastic and said, "Come with me and we'll have a talk with your father."

So ably did he back up the younger man's plan that the father finally gave his consent. Much to their surprise, the "Tribune" came out the following Sunday morning with a feature story of the proposed plan, mentioning Anderson & Cowie by name but not stating their address. Bright and early Monday morning inquiries began to pour in to the "Chicago Tribune," wanting to know the address of An-

derson & Cowie. These people promptly swooped down upon Anderson & Cowie's office and young Anderson was almost mobbed. He found himself talking to groups of twenty-five and thirty would-be home owners at a time. Noon time came and went, and still the inquirers arrived. Young Anderson would have had no luncheon if his father had not sent out for sandwiches and insisted upon his eating as he talked.

The eagerness of these groups was a striking demonstration of the potential field for the homebuilder willing to go after business in an aggressive manner.

The agreement with these people was that buildings erected for them were guaranteed not to exceed the actual cost estimate, but the buyer was to receive the benefit of any reduction in actual cost as compared with the original estimate.

The labor difficulties which culminated in the Landis Award forced up building costs to such an extent that Anderson & Cowie lost considerable money on most of the one hundred dwellings built under this plan. On some of these the excess labor cost ran to \$500.00 above the estimate. But Anderson & Cowie faithfully fulfilled their agreements and took their profits, if any, in the favorable publicity they received. Young Anderson got his full share of the grief and some exceedingly valuable experience.

He says he would not advise anyone else to go into such a plan. The publicity gained was, of course, splendid advertising of a sort that could scarcely be bought—but was undoubtedly paid for.

Anderson & Cowie are a splendid illustration of the high type of men to be found in the building industry, men of sterling character, fine human qualities and probity—like Caesar's wife, above suspicion.

A Country Estate Residence

Farms and Smaller Country Places Provide a Fitting Setting for the Type of Home Originated by Dutch Colonists. Harold Fisher Patterson, Architect

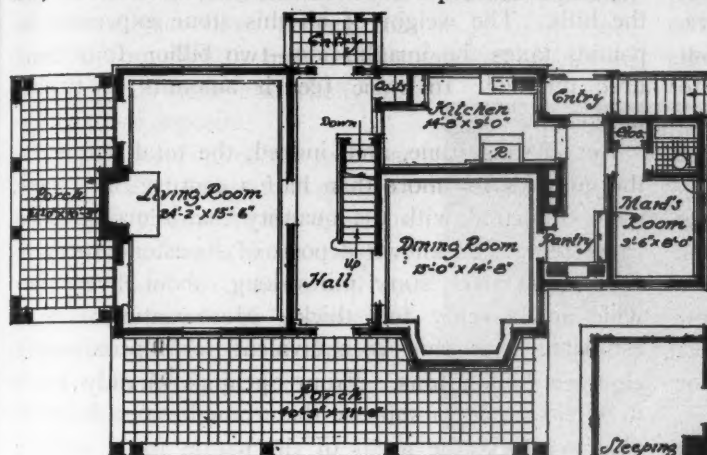
By HARRIET S. GILLESPIE

FEW moderate sized houses embody greater charm of composition with convenience of arrangement than this simple roof-dormered dwelling designed by Harold Fisher Patterson, architect, of New York. Built to suit a particular site at

house should be planned to suit the living conditions which included a moderate amount of entertaining.

While the design savors of the Dutch Colonial to a pleasing extent, it follows in the main the lines of the early farmhouse type, to which has been introduced the long, low roof dormer and the overhanging roof to enclose the porch. The glass-enclosed porch built on at the left balances the "L" at the right.

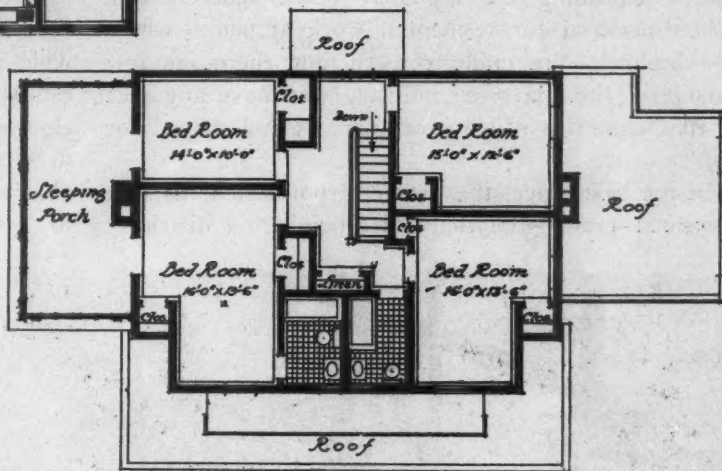
The floor arrangement is convenient. The living room occupies one end, with the dining room, service portion and maid's room opposite.



First Floor Plan.

Setauket, Long Island, it was planned on simple lines as befitted an environment that once sheltered the early Dutch settlers and also to take advantage of a fine view of Long Island obtainable from the commanding point on which it was located.

Attached to a small estate, it was desired the



Second Floor Plan.



A Charming Rural Residence on Long Island, Which Finds Its Inspiration in the Dutch Colonial. Harold Fisher Patterson, Architect.

Quarrying Indiana Limestone

Cutting the "Nation's Building Stone" from Vast Deposits in Bedford-Bloomington District Presents Great Engineering Spectacle

By ROBERT H. MOULTON

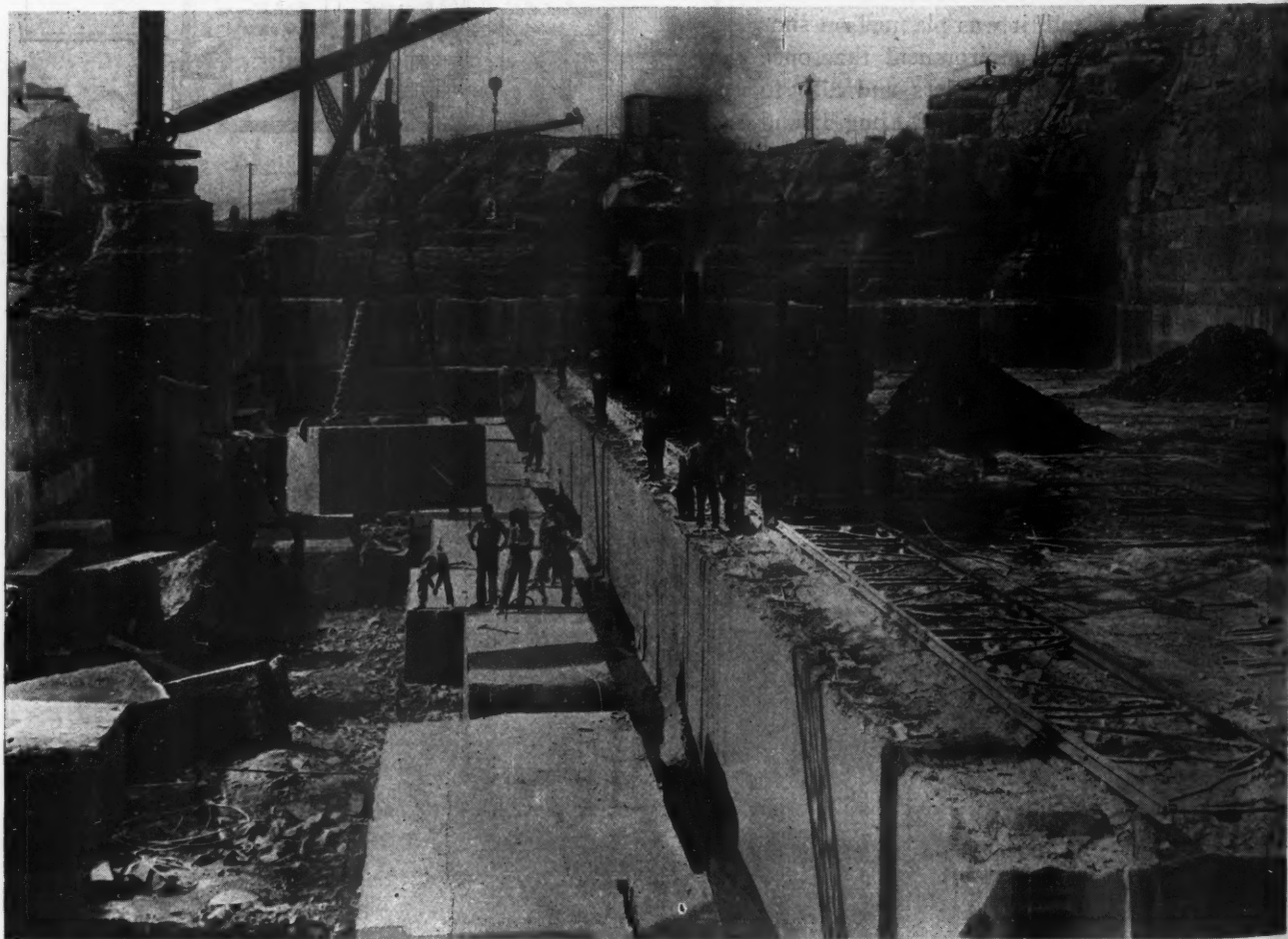
WITHIN recent years the beautiful limestone which comes from the quarries of Indiana has come to the attention of many builders and home owners through its use as a facing for smaller dwellings. It has long been recognized as the usual material for the construction of skyscrapers, banks and other buildings of a monumental type, but it is its more recent use as a material which enters into the construction of a home of average size which has brought it vividly to the attention of the average builder and the general public.

Yet, common as is the sight nowadays, of huge trucks depositing the regularly hewn slabs or the lighter material for residential work at places where new buildings are under construction, there are few outside of the quarrying industry who have any idea of the manner in which it is quarried and shaped for use.

In the first place, the district from which the best limestone comes—the Bedford-Bloomington district—

is an enormous one, measuring some forty miles in length by five miles in width. The production capacity of the district likewise is enormous. Each year approximately 30,000 cars of stone—enough cars to make a solid train 250 miles in length—are taken from the hills. The weight of all this stone expressed in pounds taxes the imagination—two billion four hundred million! In cubic feet it amounts to twelve million.

But all this stone, and, indeed, the total output of the quarries for more than half a century, is a mere trifle compared with the quantity that remains to be harvested. The known deposit of limestone forms a solid sheet over sixty miles long, about five miles wide and seventy feet thick. Mathematicians have estimated that this is equivalent to approximately eighteen billion tons. From openings already made it is reasonable to suppose that enough stone is available to supply the needs of the nation for a century to come, even taking into account the constantly



Channeling Machines Move Back and Forth on the Limestone Deposits Under Their Own Power, Hewing from the Solid Rock Great Slabs of the Material Which Later Will Appear in Homes and Skyscrapers All Over the United States.

increasing volume of construction that is going on.

This vast deposit of stone is believed by geologists to have been of organic origin, and to belong to Palaeozoic time, a vast era, many millions of years ago, during which life was slowly spreading, increasing and developing in the seas of our world. It is made up of the shells of some of the simplest living creatures, belonging to the group of one-celled animals or protozoa.

The stone is similar to that used by ancient Egyptians in the building of sepulchres which have endured the centuries free from any mark of time. In fact, expert analyses have proved that it is even more durable, for slightly unfavorable contents found in the Egyptian stone are wholly absent in these deposits.

It is in the spring of the year that operations in the limestone quarries reach their peak. At this time the district resembles a huge outdoor stage on which an unique and remarkable spectacle of engineering skill is being enacted. And always it is a finished performance in which men and machinery act in

earth as easily as the skin is removed from a banana.

Between the top soil and the merchantable stone lies a layer of refuse stone whose removal presents greater difficulties. Holes are drilled in the rock about three feet apart the entire length of the ledge. In each hole is placed a heavy charge of powder over which fine stonedust is packed down solid. The holes are then connected by a small copper wire and when all is in readiness a current of electricity is sent through the wire, firing all the charges simultaneously. Frequently as much as ten thousand pounds of powder are used in a single operation, the power of the blast seeming to lift a section of the earth solidly and making the hills tremble.



Above Is a Planer Battery in a Stone Mill, Shaping Slabs Ready to Go Into the Wall.



A Stone Mill in the Bedford-Bloomington Fields Where the Indiana Limestone Is Shaped to the Specifications of the Architect.

perfect unison throughout every operation.

The first step in the quarrying of stone is the stripping of the top earth. In the early years of the industry this was a slow and costly operation which naturally added to the price of the stone. By the use of hydraulic stripping machines this work is now done economically and in a fraction of the time formerly required. Powerful pumping stations force streams of water through a series of pipes which gradually diminish in size until finally the water gushes from a four-inch nozzle at the rate of 900 gallons a minute, exerting a pressure which rips off the top

into the stone with almost human precision. Each machine is a small locomotive, fitted on one side with a gang of steel chisels. As the engine moves back and forth along a temporary track built on the ledge, the chisels cut grooves in the stone. On each trip the channel is deepened until the great block is ready for "turning."

To simplify the quarrying process, a ledge is divided into what are known as "floors." A floor is the depth of a channel cut, which is eight to twelve feet. After a machine has cut to the depth of a floor, the stone is split loose at the bottom by means of wedges. As

the blocks turned in this way are much too large to load on a railroad car, they undergo another drilling process which splits them into sizes suitable for the mill machinery. These smaller blocks are numbered, then loaded on freight cars and hauled to the stacking yards, where they remain until needed.

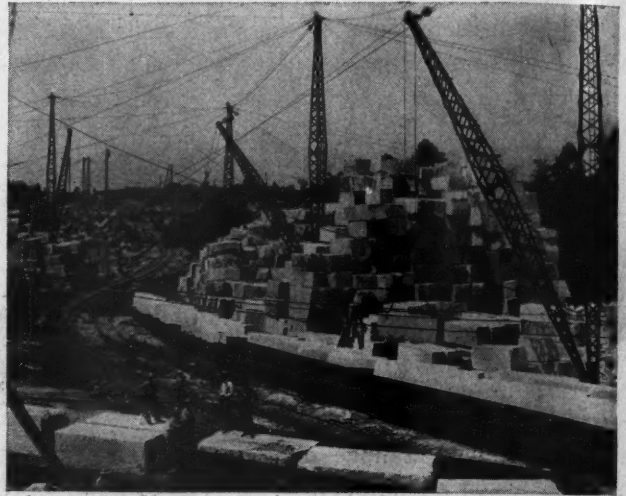
Huge steel derricks and traveling cranes operated by electricity are used to handle the blocks of stone at the quarries. Five thousand feet of rope cable is a part of the equipment of each derrick, and in a single quarry there may be as much as forty miles of wire strung through the machinery from the hill-tops to the pit depths.

But quarrying the stone is only a part of the process which finally sends it on its way to the cities and towns where it is to enter into the construction of buildings. In the huge mills, with their elaborate and ingenious machinery, the blocks are split and planed into various sizes and shapes, and to the exact measurements, even to the smallest fraction of an inch, worked out by the designers of the buildings. This means that the mills are equipped with machines capable of turning out almost any form in stone. Some fashion tiny bits of moulding or trimming; others split and plane rectangular blocks; still others carve elaborate Gothic tracery or hollow out great columns for public buildings.

If the stone cutter of fifty years ago could return and wander into one of the mills of the Bedford-Bloomington district today, it is probable that he would not know how to operate any of the machines used there, so marvelous has been the improvement in the equipment. As an illustration, take the gang saws: Not so many years ago these saws were suspended by ropes and the sand and water used in cutting the stone were fed to the saws separately by hand. The ropes, too, were lowered by hand as the saws ate their way into the stone. An improvement came when the ropes were replaced by rigid swinging arms, with four screws to control the feed of the

saws. Further improvement followed when the feed was made automatic.

But it was not until the automatic sand feed was devised and combined with a circulating pump that the gang saws reached their present state of perfec-



Billions of Pounds of Limestone Are Taken from the District Each Year, but the Field Seems Practically Inexhaustible.

tion. Under the system now in use, the sand and water used in the cutting process are returned to the pump pit after passing over the stone. A simple treatment then washes out and carries away the particles of sand which have become too fine for further use.

Strange as it may seem, it is not the saws but the sand that does the cutting. The saws operate either with a pendulum or parallel motion. In the former case the saw lifts at the end of each stroke, thus forcing the sand farther into the stone and increasing the depth of the cut. The saw operating with a parallel motion has no lift. It is generally employed where crushed steel instead of sand is used as a cutting agency.

You would hardly expect diamonds to be employed in such heavy work as the cutting of building stone, yet it is a fact that diamond saws are in common use in the mills and have greatly speeded up work. The diamond saw has a circular blade of steel with teeth, or steel castings, about an inch and a half square, set in grooves and fastened with a copper rivet. Into each tooth from four to eight genuine rough black diamonds are set. A saw 32 inches in length will have 50 teeth, with from 200 to 400 diamonds, and the larger blades, some of which run to 78 inches, a proportionately greater number of precious gems. While this method of sawing involves a heavy cost, it proves highly economical, for a sawing rate of 60 inches an hour has been attained. Such speed was hardly dreamed of a decade ago.

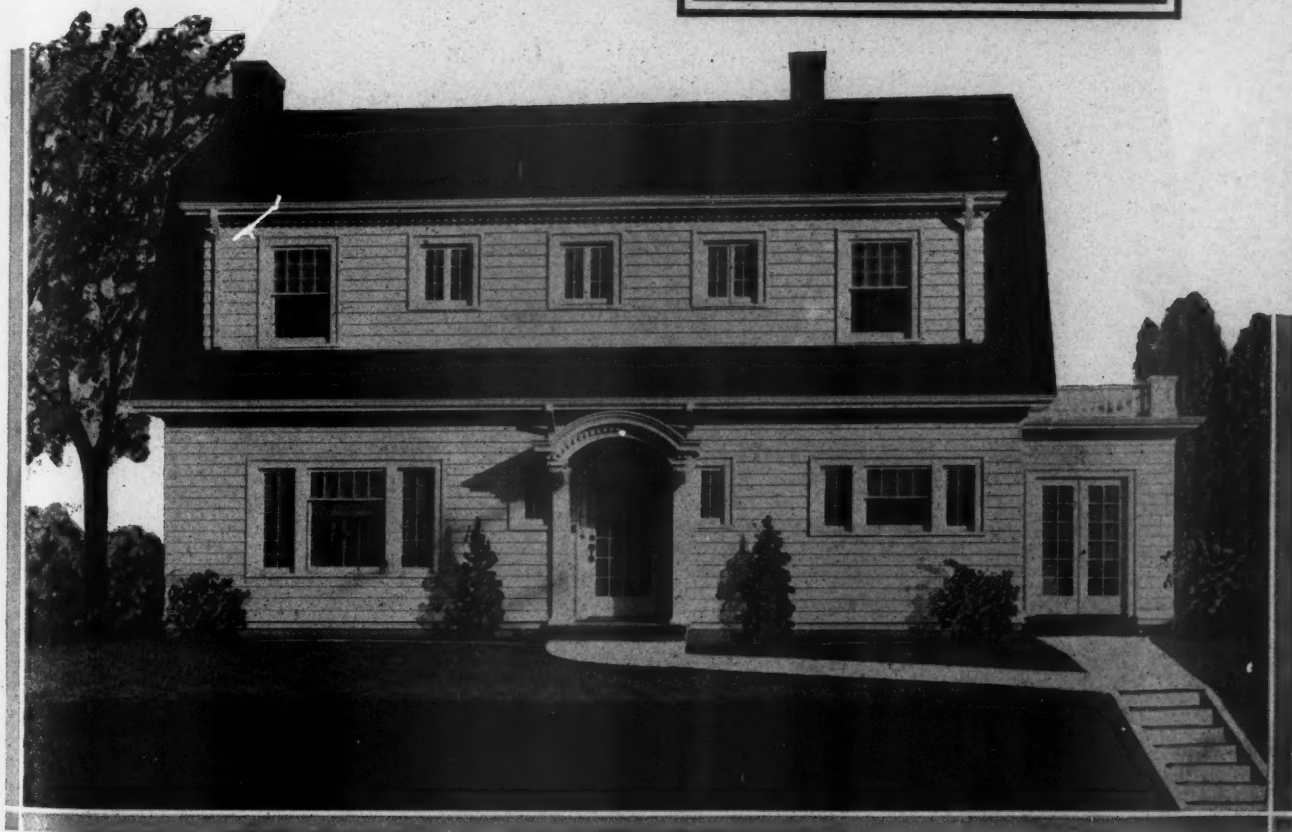
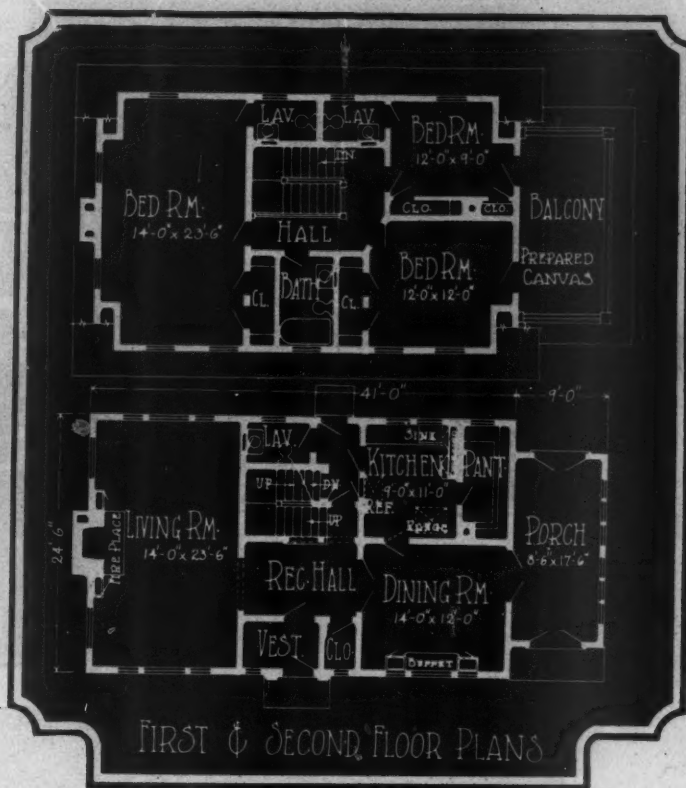
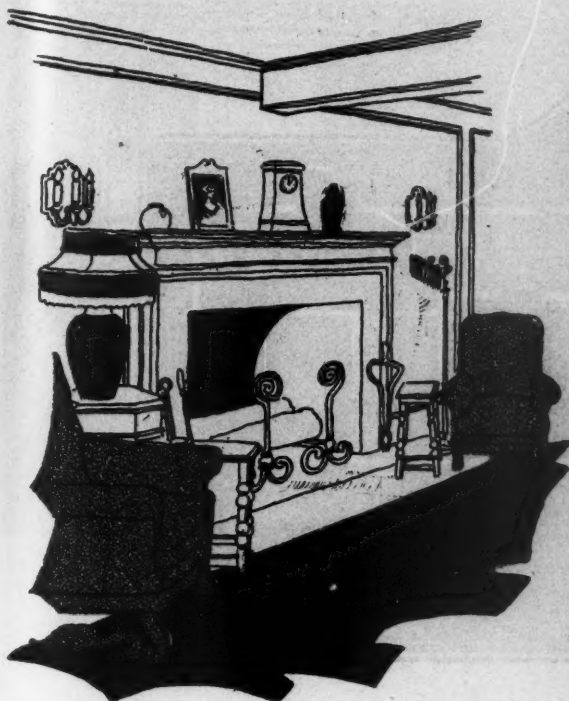
(Continued to page 188.)



The Vast Thickness of the Bedford-Bloomington Limestone Deposits May Be Realized from This View of Quarry Operations Under Way.

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Blue Ribbon Homes



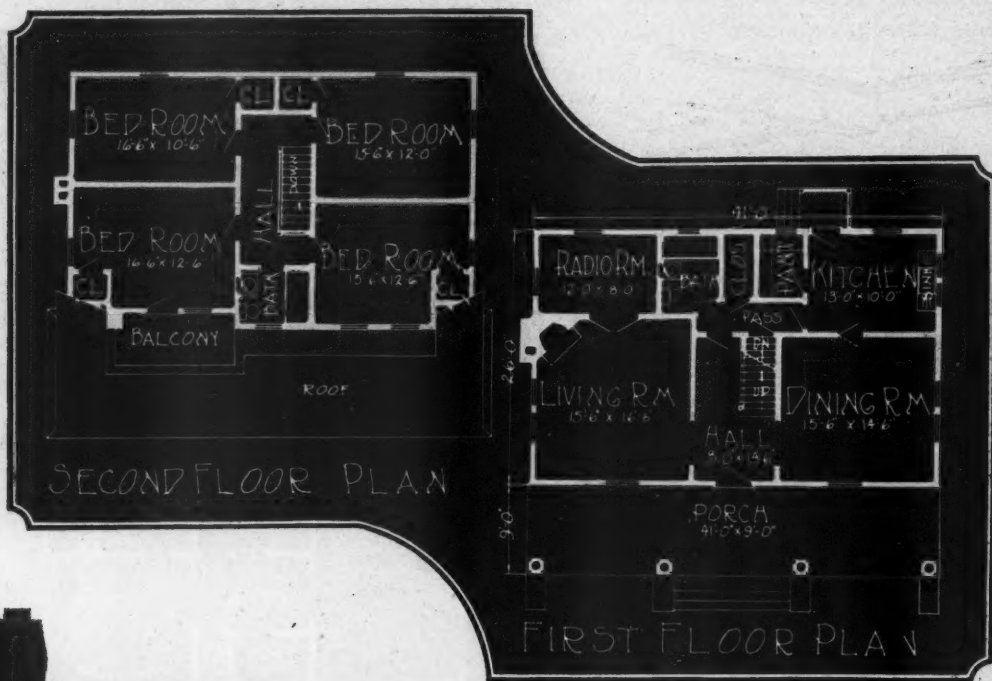
A BEAUTIFUL HOME is this white Dutch Colonial, with its attractive entrance, its unusual and pleasing placing of the windows and its sunporch. The white clapboards of the second story against the darker color of the stained shingles give the home an individuality which will be welcomed by the home builder.

The floor plans retain the advantages of typical Colonial

residence construction. The living room, with its charming fireplace is separated from the kitchen and dining room, while the hall arrangements are most efficient. On the second floor the large master bed room and the two smaller ones are provided with exceptional bath and lavatory facilities.



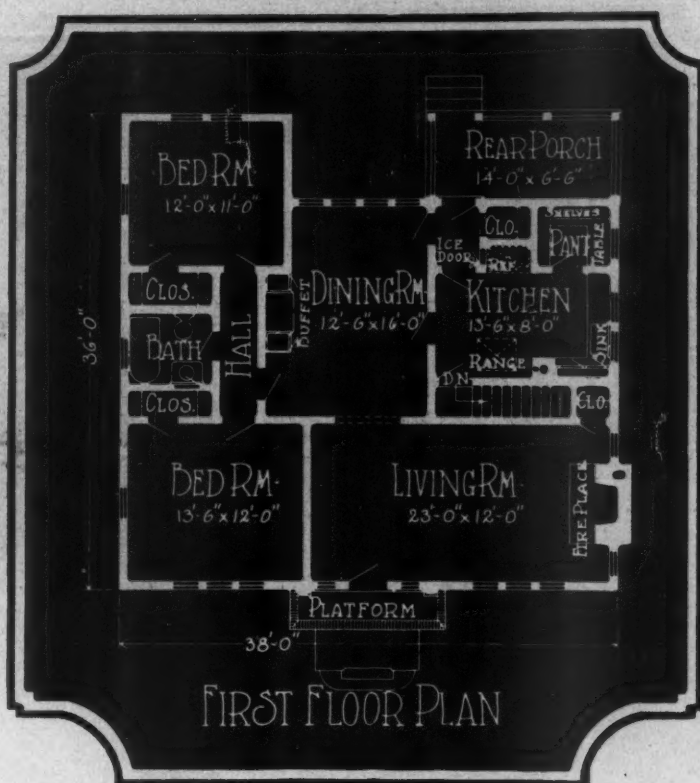
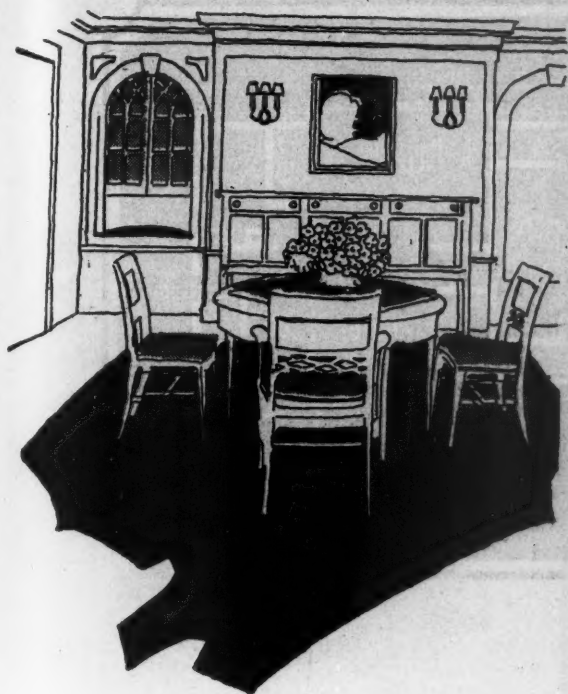
Blue Ribbon Homes



A PORCH AND FIREPLACE HOME. One of the most usual remarks of those planning to build is "My home must be planned about the porch and the fireplace." Here is a home which meets these requirements, for the broad expanse of the columned porch and the corner fireplace are unusual in home design and give the distinction of

the unusual to both the interior and exterior of this home. The arrangement of the rooms is simple, but effective. The living room, with the radio room to the rear is separated from the dining room and kitchen by the hall. On the second floor, all of the four bedrooms are arranged for light and air from two sides.

Blue Ribbon Homes

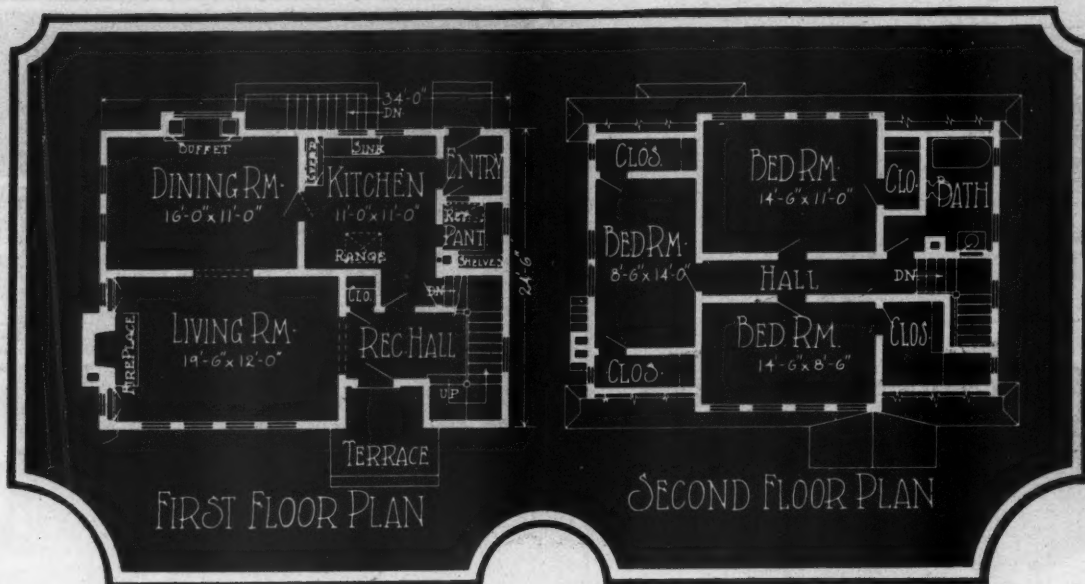


BUNGALOW COMFORT is assured in the wide expanse of the front of the charming home shown here. The triple break in the roof line, the Colonial detail of the front door and the novel manner in which brick and stucco have been combined in the fireplace and chimney are attractive features.

The floor plans show an unusual arrangement of the rooms, with the dining room as a center about which the rest of the home is arranged. Note that almost the entire outside wall of the dining room is of glass, insuring a maximum of light and air. The kitchen is planned for convenience. Both of the bedrooms have cross ventilation.



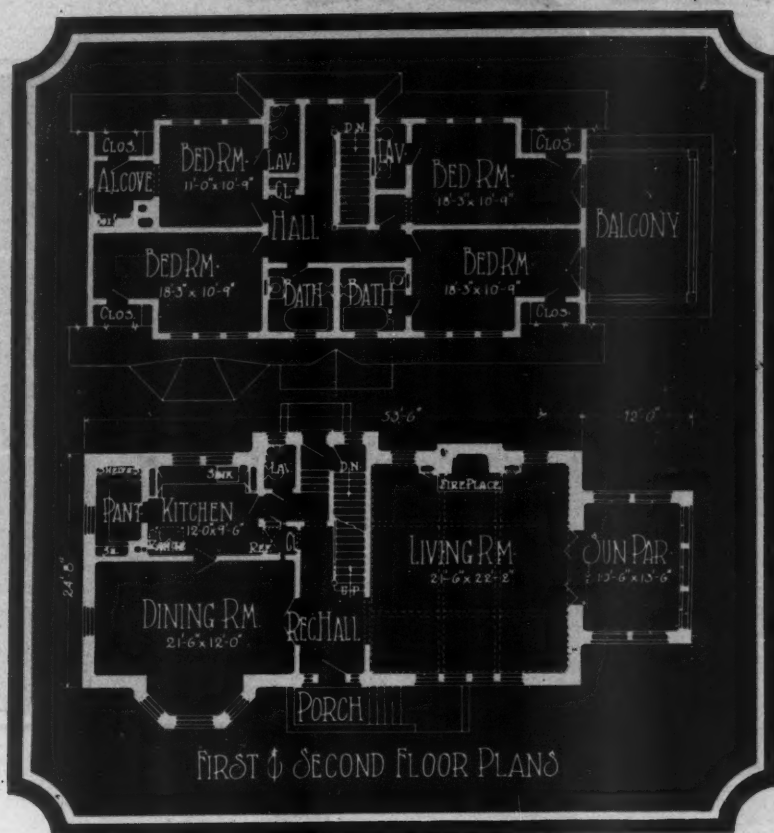
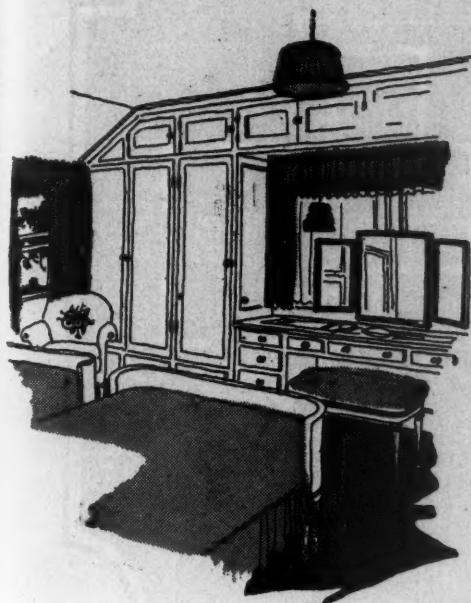
Blue Ribbon Homes



A PRACTICAL RESIDENCE OF MEDIUM SIZE is presented in this home of seven pleasant rooms, modeled after the homes in the Colonial times. The wide clapboards, painted white, and the recessed entrance are features which make this design out of the ordinary.

The living room, with the fireplace as its central feature, opens directly into the dining room. The kitchen has its own entry, with provision for icing the refrigerator from the outside.

Blue Ribbon Homes



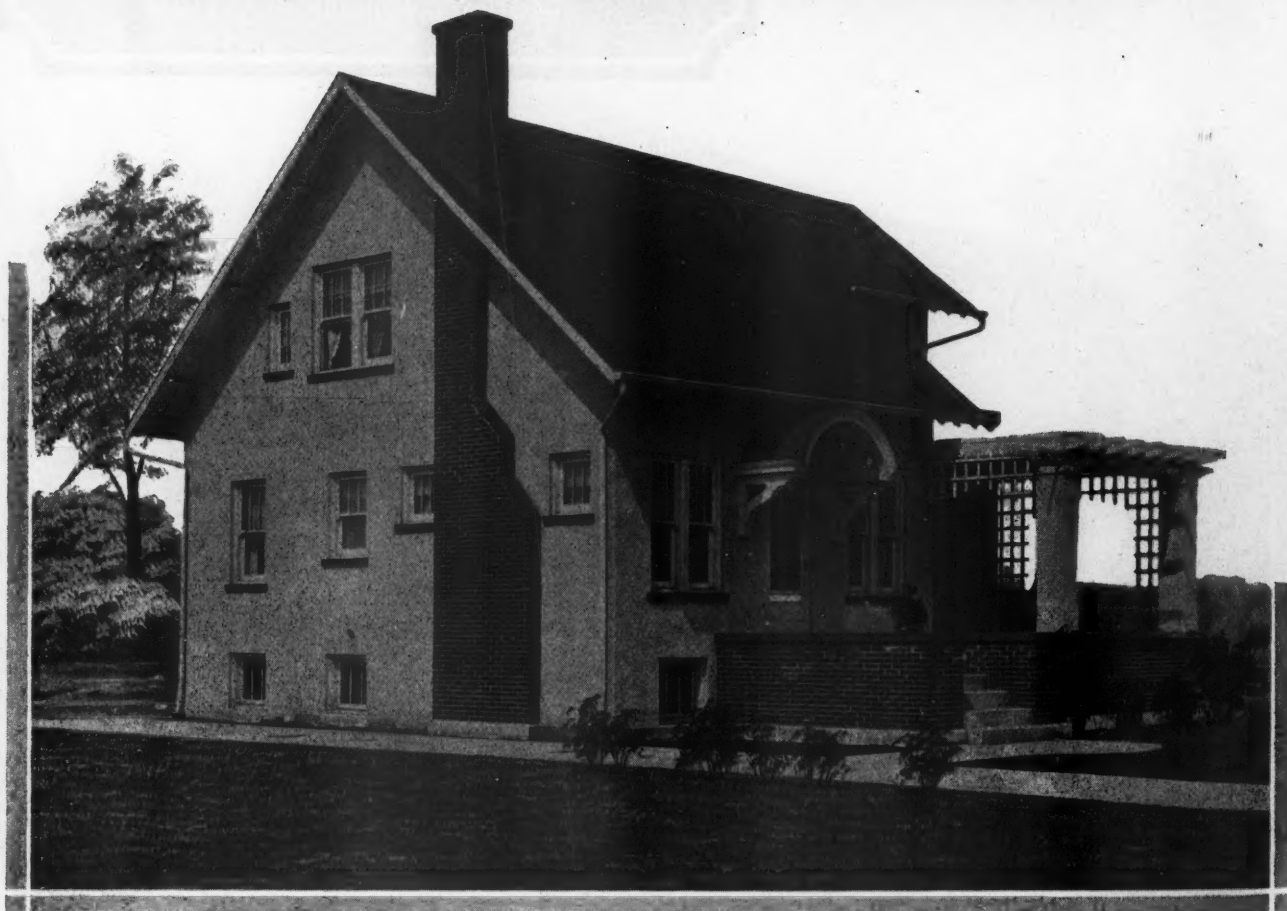
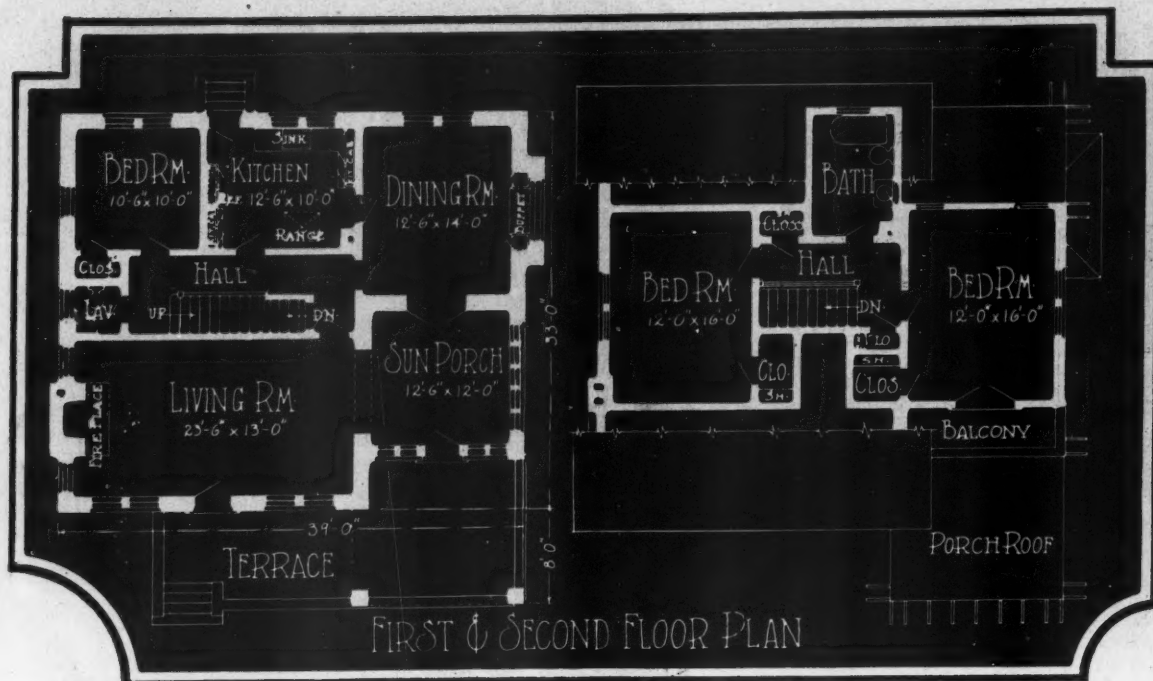
A BRICK DUTCH COLONIAL which presents many advantages for the larger families is presented here. The designers of this home, while retaining the distinctive features of the Dutch Colonial have modified it to suit their requirements, as is shown in the entryway, so planned that the house may be built along the length of the lot,

with the sunporch facing the street. This is a practical plan, since the width of the house, 65 feet, including the sun parlor, makes it difficult to build with the entrance facing the street in cities.

The seven rooms are exceptionally well arranged for comfort and convenience.



Blue Ribbon Homes

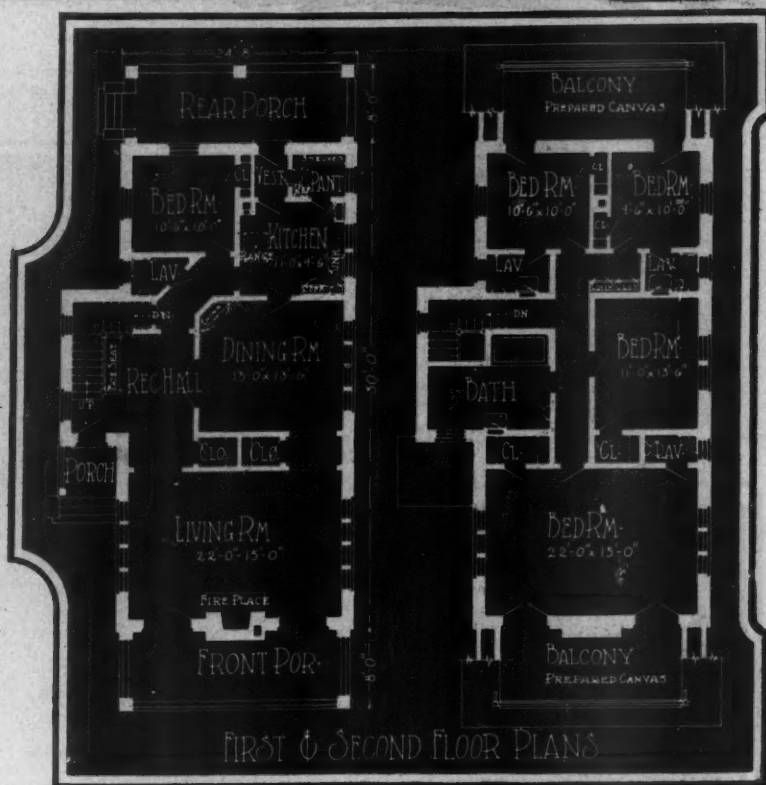
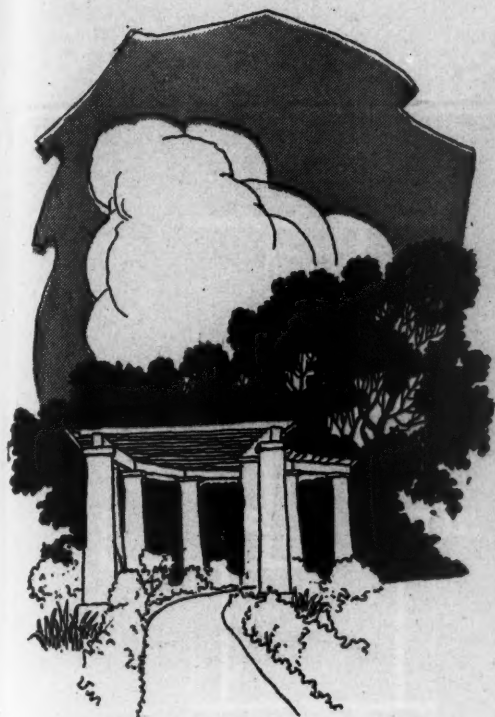


A STUCCO COTTAGE. Practical comfort and economy of design are features of this stucco home which attains charm through the attractive porch, its arched doorway and the use of brick for trim under the windows. The house should be economical to build because of its being

almost square and because of the efficient utilization of the available space.

The living room is of pleasing size, the dining room well placed and the downstairs bedroom might serve for a maid's room. The two upstairs bedrooms are well arranged.

Blue Ribbon Homes

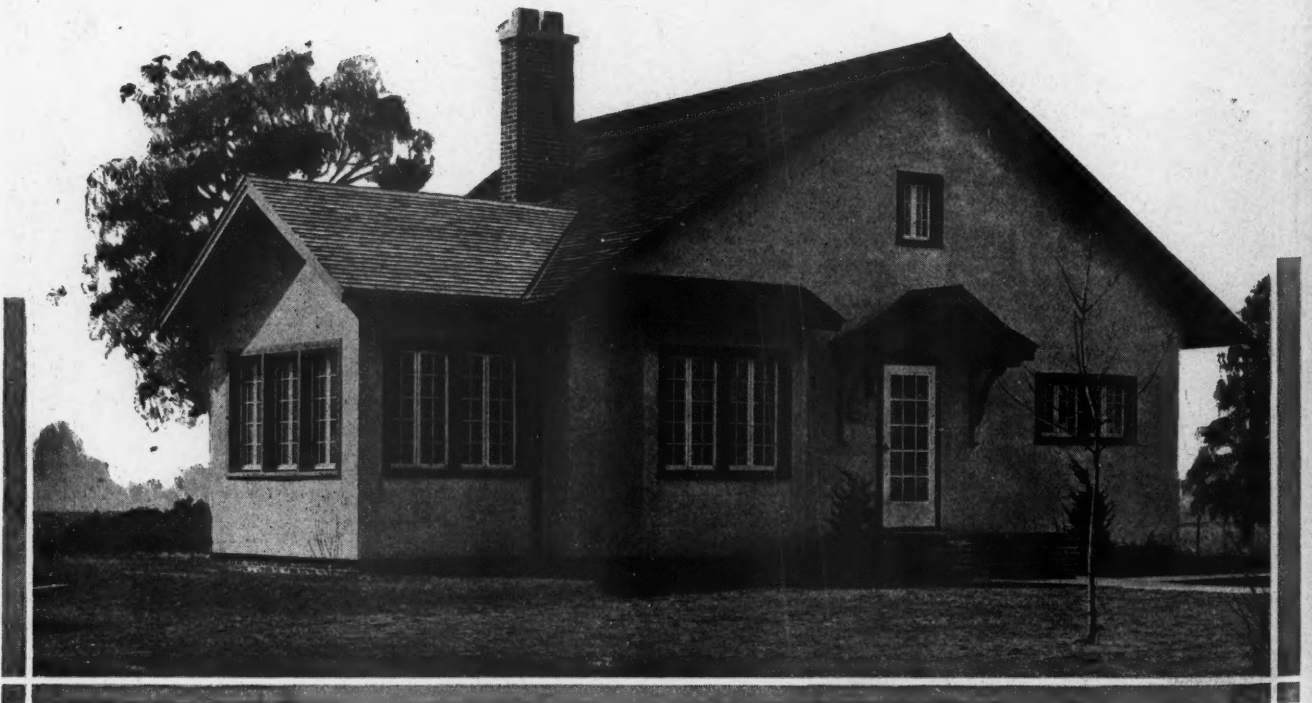
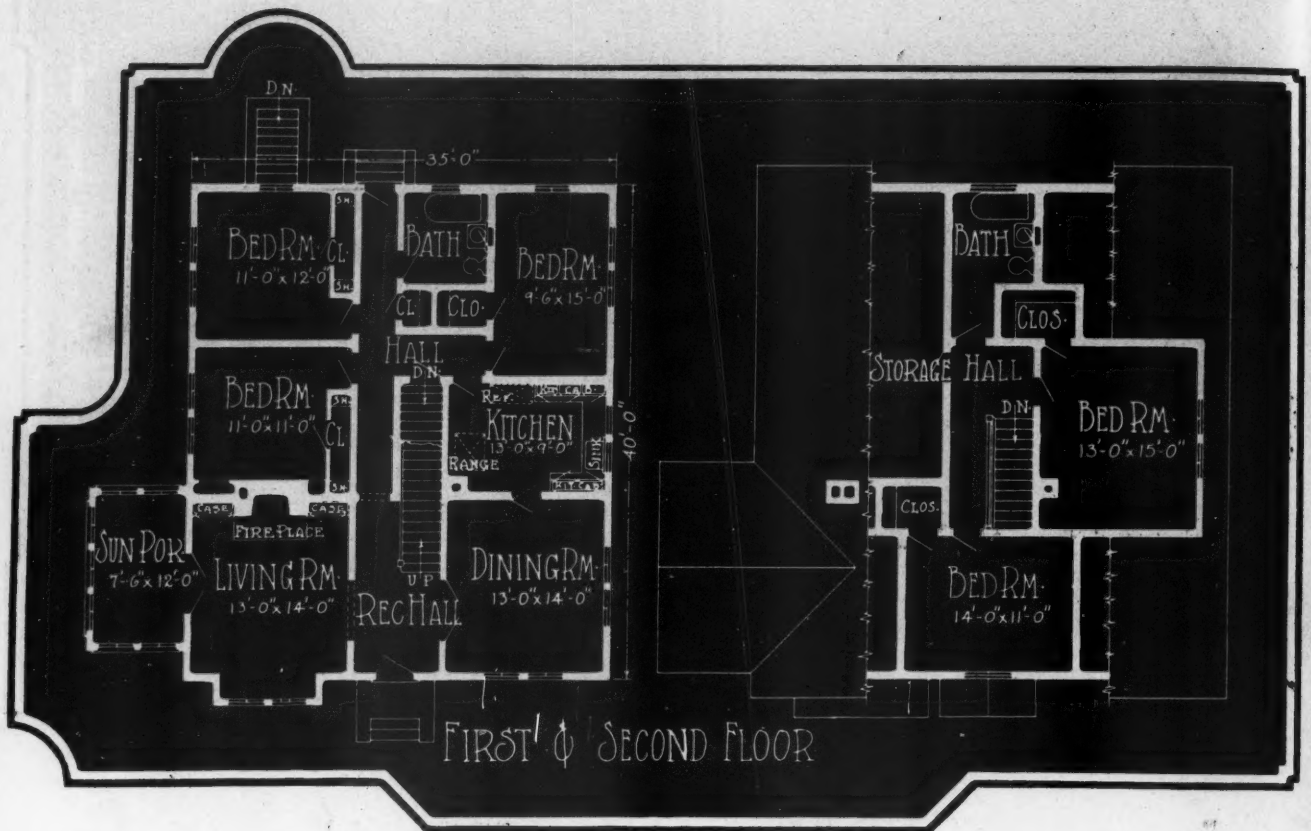


A TIMBERED HOME which may well trace the interesting treatment of the second floor to the England of Shakspeare's time such as the one shown here should have a strong appeal to a family expecting to erect a permanent home. The spacious porch, the interesting entrance and the sweeping roof lines of this home help to make it interesting.

The floor plans disclose an interesting placing of the rooms, with the downstairs bedroom as an unusual feature which will be appreciated in a family where there are elderly persons. The four bedrooms on the second floor are well grouped and convenient.



Blue Ribbon Homes

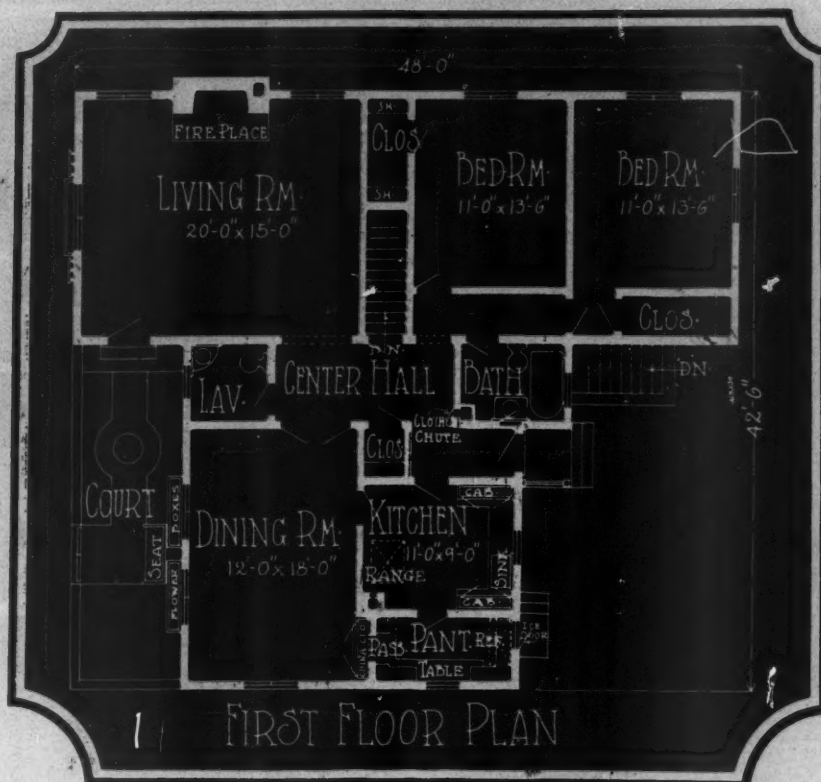
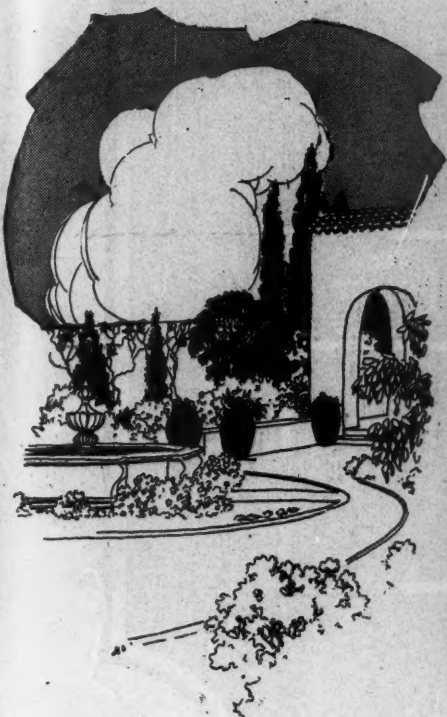


COTTAGE COMFORT is typified in this story and a half home of stucco, attractive through the wide sweep of the roof and the covered entry. And this is a plan which might have the first floor finished as the initial building operation with the bedrooms on the second floor left unfinished until more room was needed, since the first

floor alone will serve the needs of the family.

The sun porch adds much to the size of the living room with its pleasant fireplace, the dining room is of an adequate size, and the bedrooms well grouped with the bath. The two bedrooms on the second floor are well proportioned and adequately provided with closet space.

Blue Ribbon Homes



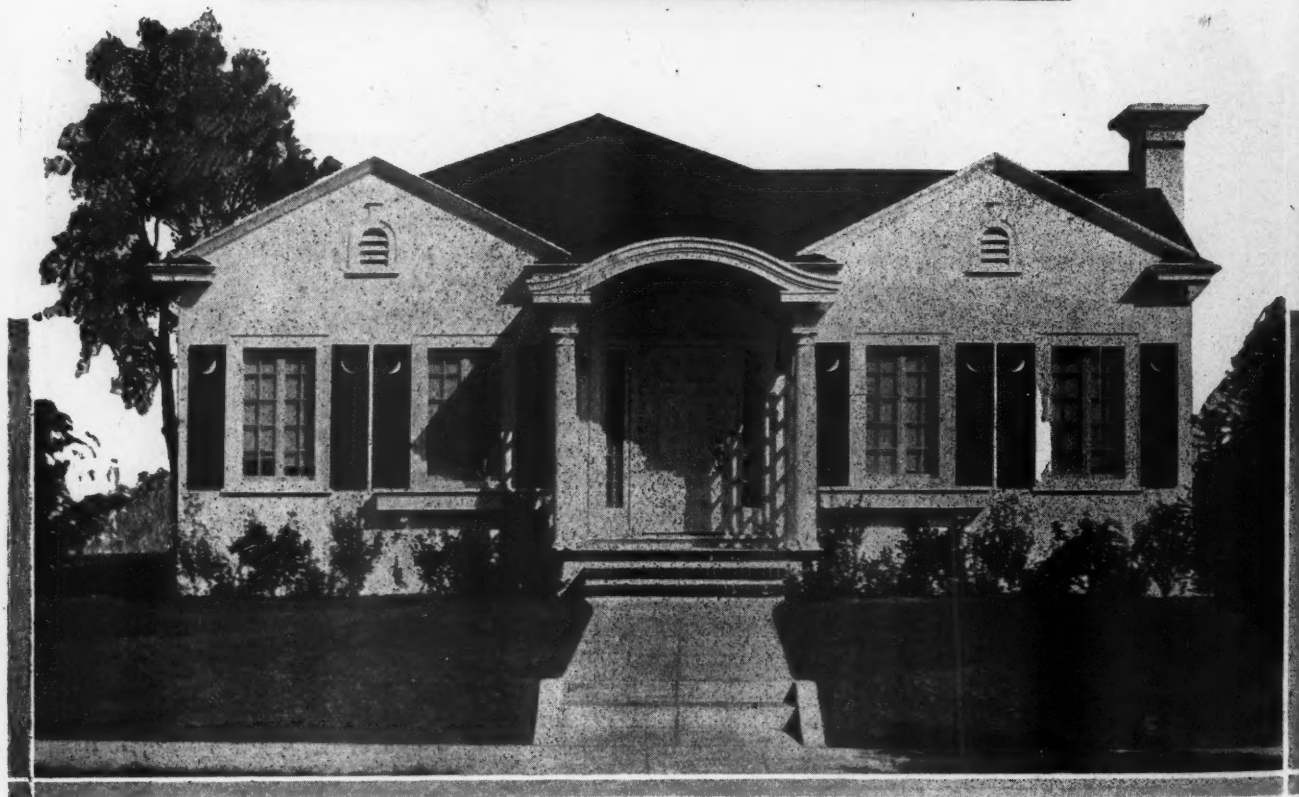
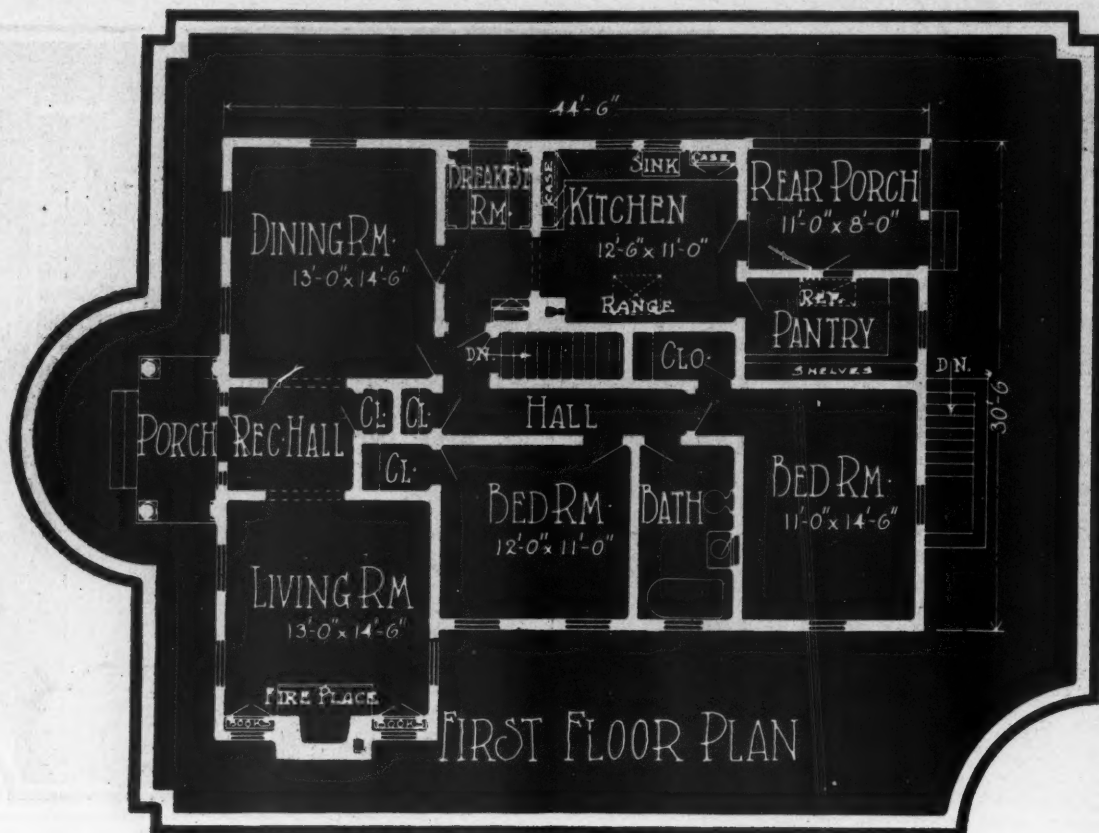
A PRACTICAL "CASTLE IN SPAIN." This home, which owes its architectural origin to Sunny Spain, may well be the "Castle in Spain" of a home loving family, and has the advantage over most such dream in that it can be realized. The distinctive, but simple lines of such houses are rapidly increasing their popularity.

High ceilings in the living room and dining room are

features which help to make this home "different" from the ordinary bungalow type of construction, and which make possible charming treatment of the interior. The court insures a pleasant privacy and the general plan of the interior is most convenient. The house will require a large lot, because of its outside dimensions, 48 by 42½ feet.



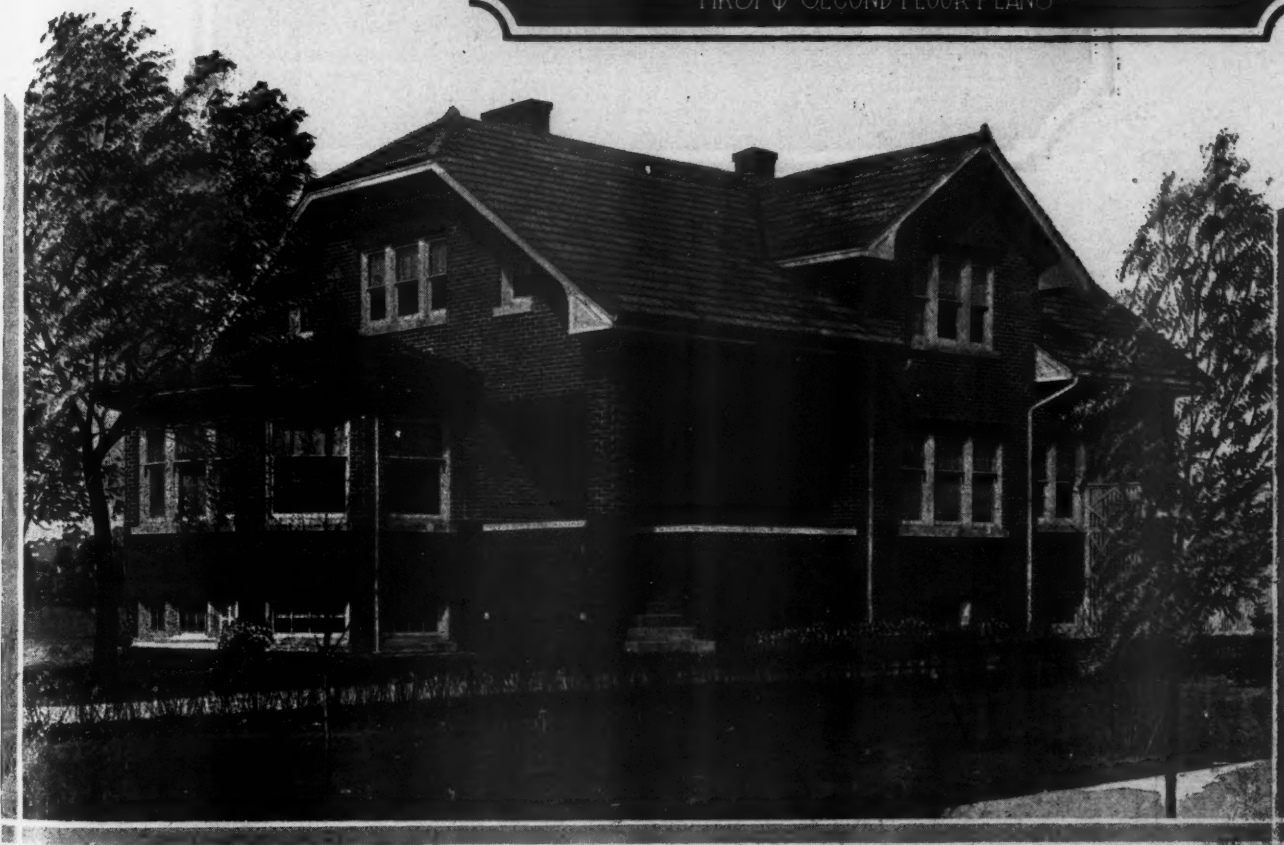
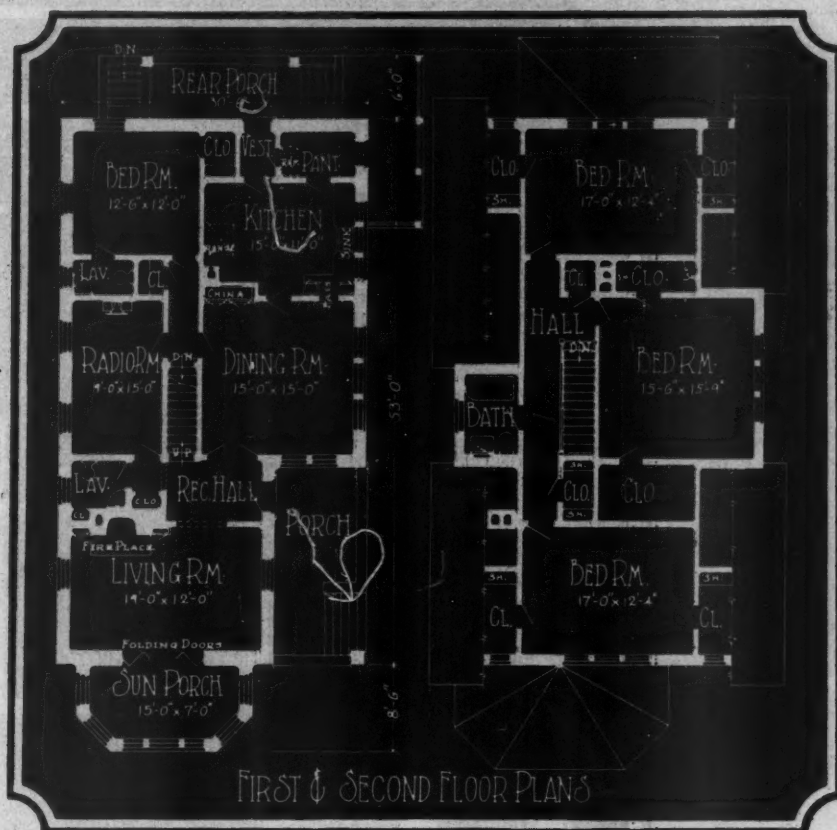
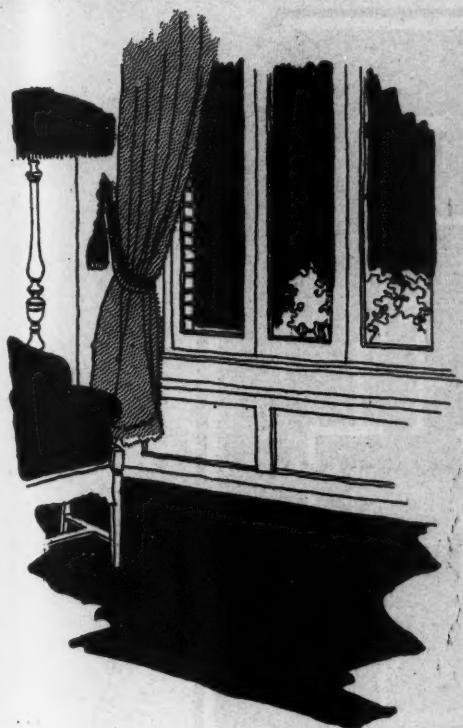
Blue Ribbon Homes



A GABLED BUNGALOW in stucco is unusual but can be made most pleasing as is shown by this well planned six-room home. The white stucco of the exterior is well set off by the pleasing green of the shutters of the long casement windows and the arch of the entryway forms a

pleasant setting for the details of the well designed door. In the interior, the reception hall divides the living room from the dining room, which has a pleasant breakfast room adjoining. The kitchen has its own porch and entry, and the bedrooms are conveniently arranged.

Blue Ribbon Homes



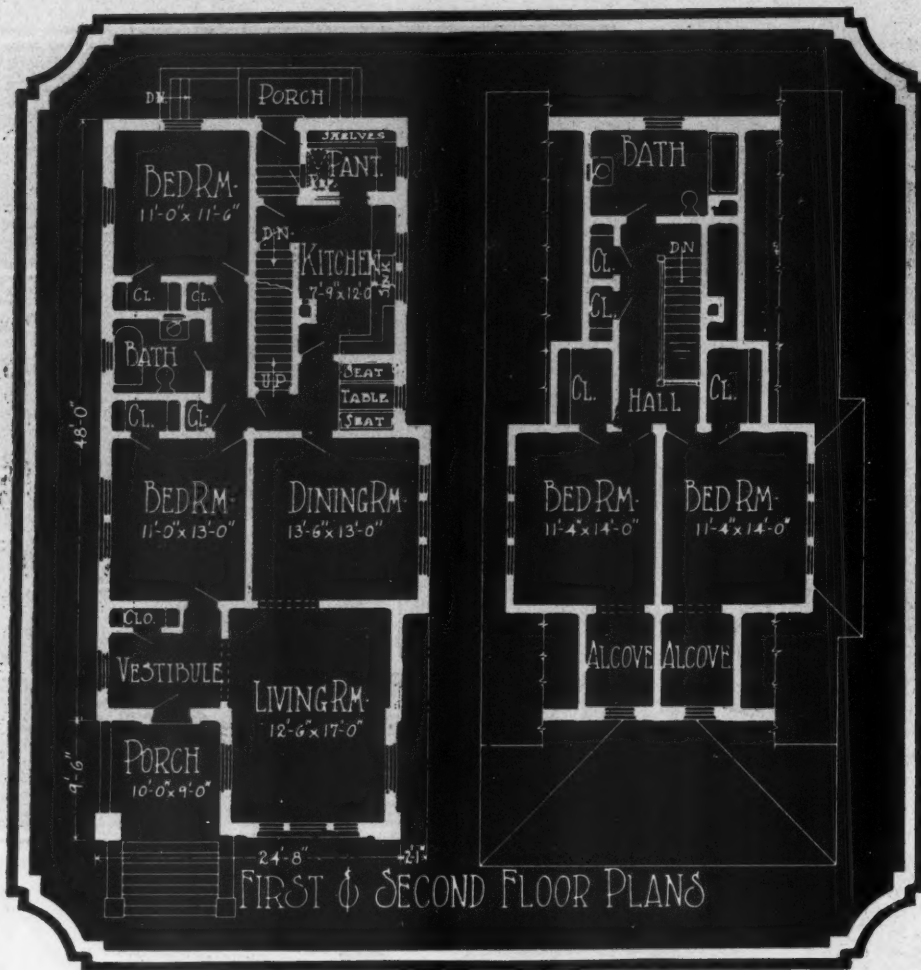
A COMMODIOUS BRICK HOME. The pleasingly variegated colors of the face brick and the tile roof of this home given it a spirit and life which make it suitable for almost any location, while the size and convenience of the home make it ideal for the large family.

The curved sun porch adds virtually its entire area to

the size of the living room, which is well separated from the dining room and kitchen. The radio room is an innovation which may be converted to other uses, and the downstairs bedroom is convenient. The three bedrooms on the second floor are of adequate size.



Blue Ribbon Homes

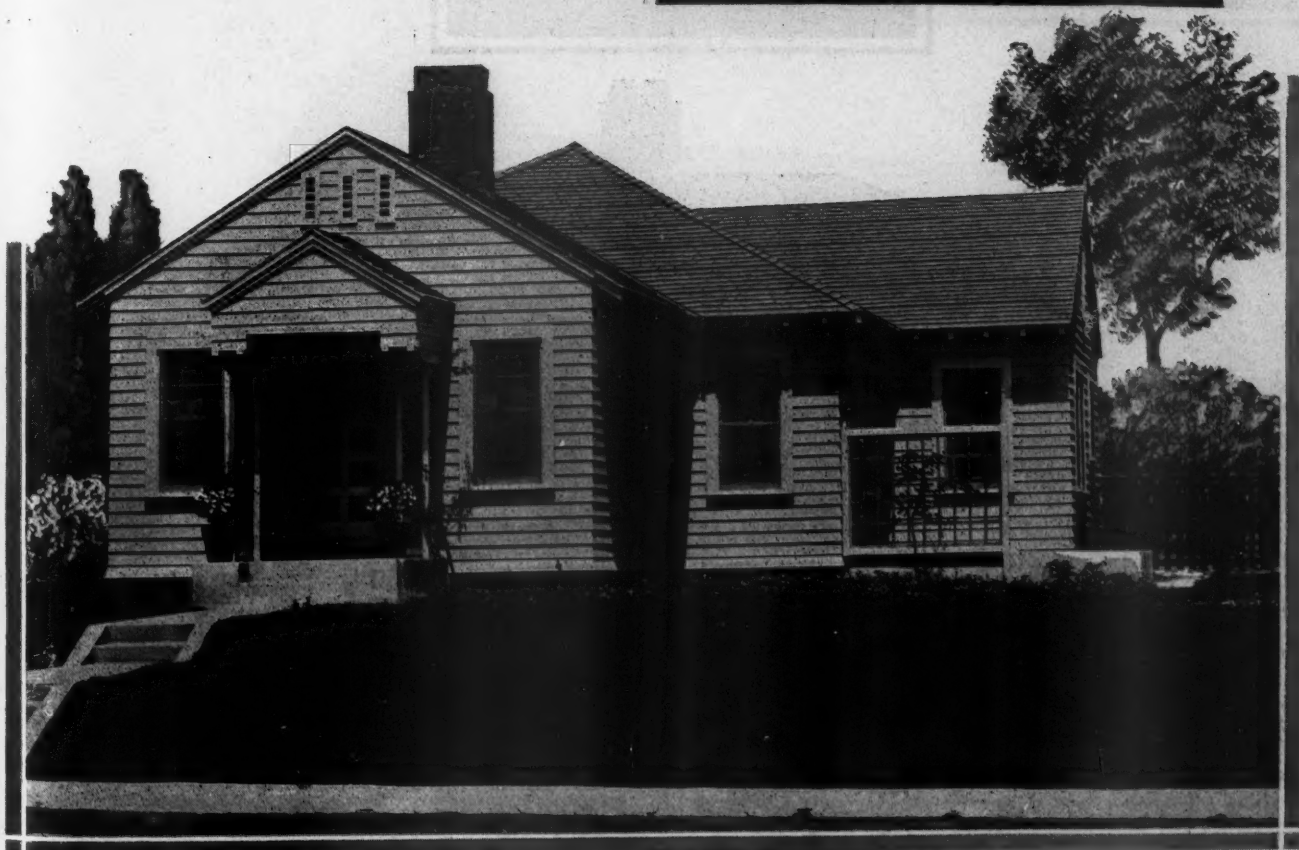
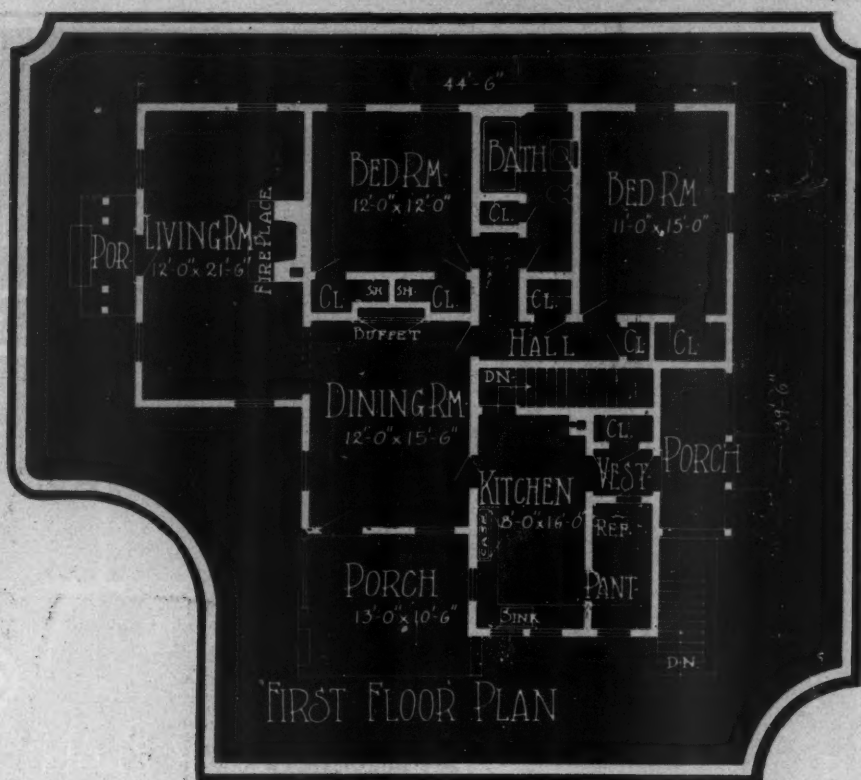


A STURDY SEVEN-ROOM HOME. This sturdy brick home, with its air of snug comfort heightened by the lines of the tile roof, may well be built on the "installment plan." The first floor, with its two bedrooms, living room, dining room, kitchen and bath, is complete as a home unit

and most pleasing in its arrangement.

When growing children demanded a "room of their own" the additional two bedrooms provided on the second floor could be finished. This is a plan which will commend itself to many families.

Blue Ribbon Homes

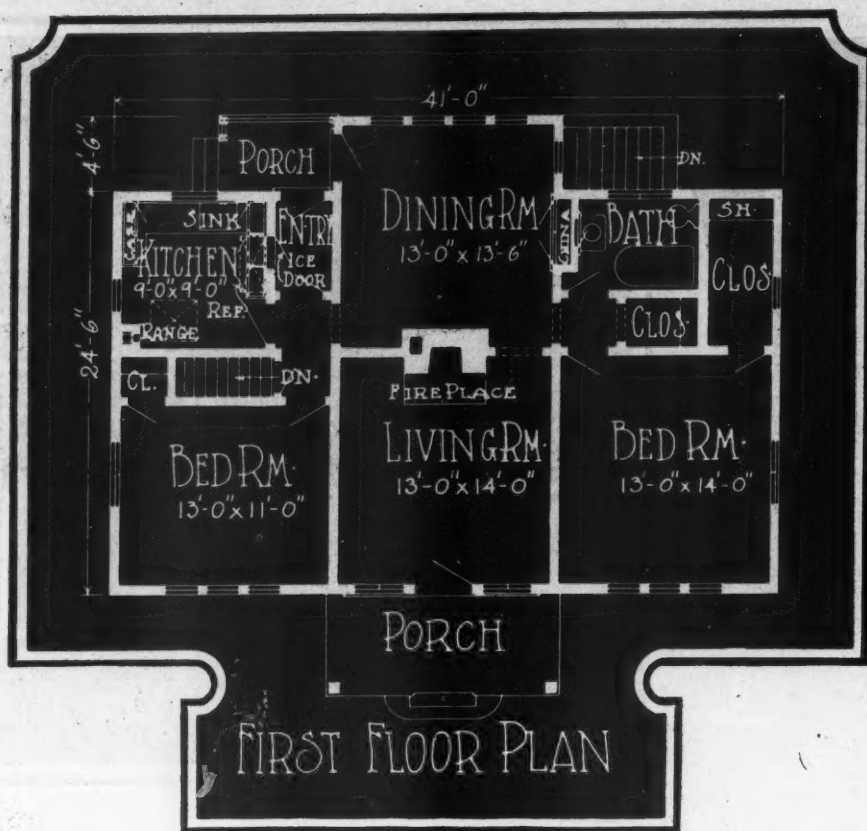


AN INVITING SMALL HOME. Irregular, but well balanced, the exterior of this little home gives the impression of being thoroughly "livable." Simple in design, it reflects the idea of practicability and comfort. Details such as the trellised porch and the fence to the rear of the lot add much to the attractiveness of the home.

The floor plan is decidedly practical, with the living room dominating the front of the house. The porch outside the dining room, situated to catch the morning sun and be shaded in the afternoon is pleasing. The arrangement of the kitchen and bedrooms is good.



Blue Ribbon Homes

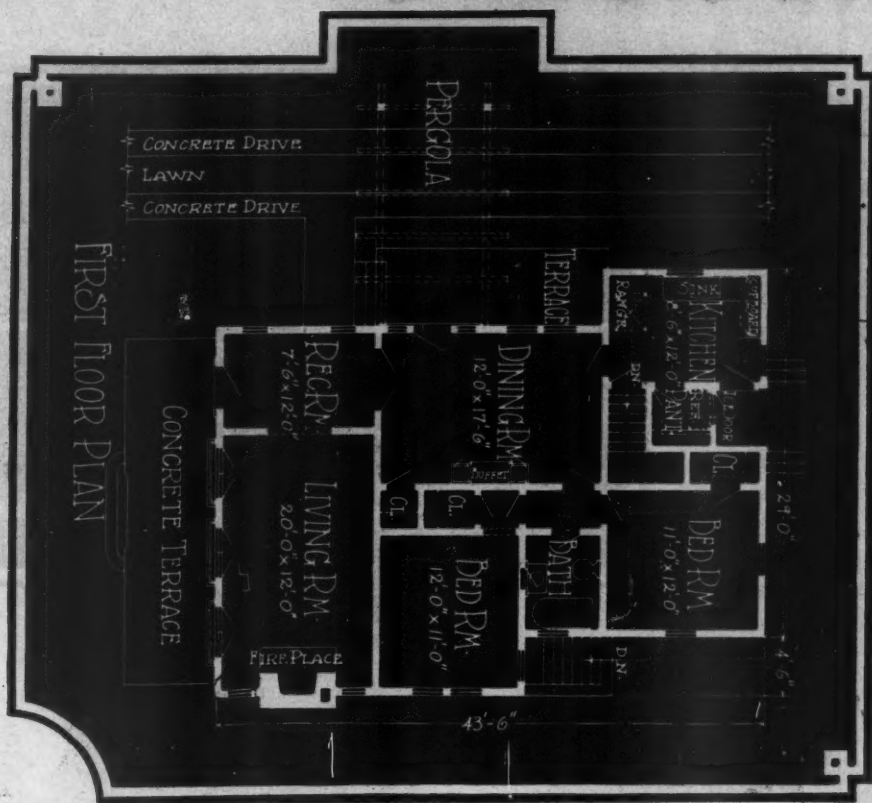
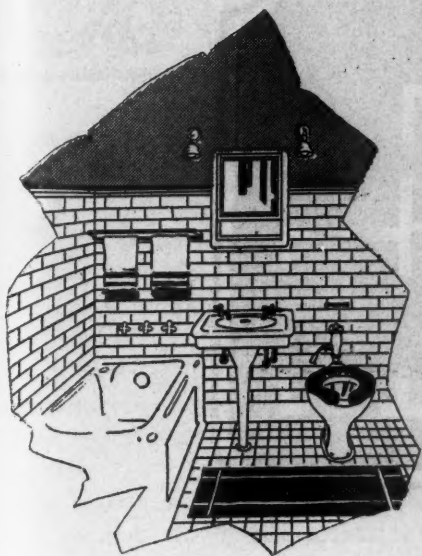


A SUNLIGHT HOME. Wide expanses of windows insure the utmost cheer and best of ventilation for this pleasing bungalow, which will take the greater part of a fifty-foot lot and really should have a lot ten feet wider. It is a home which will lend itself well to a setting of

shrubbery and careful plot planning.

The living room and dining room, in the center of the house, are quite large, while the bedrooms are of exceptional size for a home of this type.

Blue Ribbon Homes



A COLONIAL COTTAGE. The efficient simplicity and beautiful ornamentation of Colonial structures have been adopted in building this practical small home. The pleasing curved arch over the door, the long windows and their wrought iron balconies are outward manifestations of the pleasant comfort within.

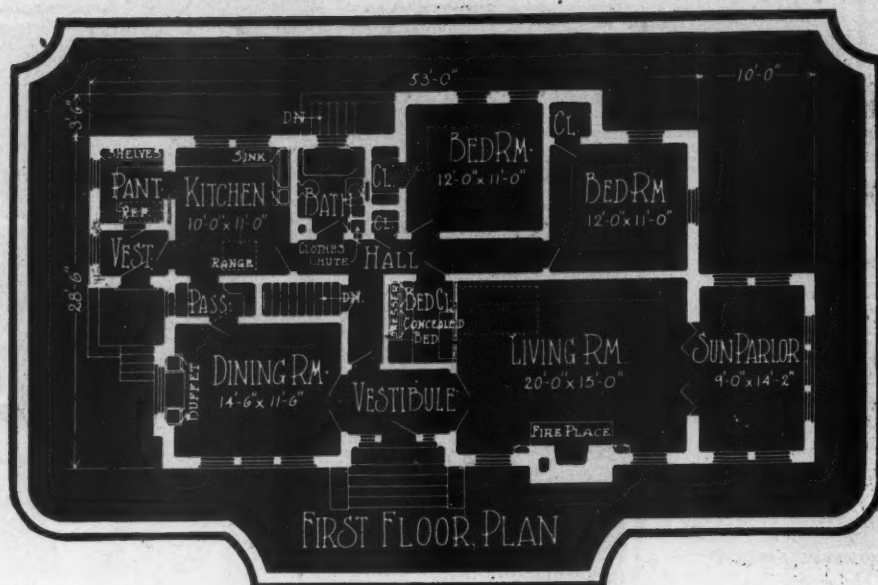
The reception hall is rather an unusual feature in a home of this size, and allows access to both the living room and

the dining room. The living room has the fireplace well situated at one end of the rather long room. A door from the dining room allows one to enter the bedrooms without passing through the front of the house. The bedrooms are well arranged and well supplied with closets.

The house is less than 35 feet wide and should fit nicely on a 50-foot lot.



Blue Ribbon Homes



AN UNUSUAL BRICK BUNGALOW. For the corner lot, this home, with its arched entryway, its fieldstone chimney and tile roof, is particularly attractive. The white of the window frames and trim gives a pleasing contrast to the color of the brick, as does the variegated texture of the chimney.

The unusual placing of the entrance allows an especially convenient arrangement of the rooms. From the vestibule one has access either to the living room or the dining room or can pass directly back to the bedrooms. A disappearing bed in the living room gives this five-room home the efficiency of six rooms.

OUR FRONT COVER HOME



Quiet Charm Is Dominating Quality of Sturdy Seven Room Home of Concrete Blocks Finished With Stucco

THE well-arranged floor plan, which must be the basis for architectural worth in any residence, is reflected in the pleasant exterior of our Front Cover Home for September. Entirely without any one dominating or blatant feature, it has an atmosphere of hospitality and comfort which cannot fail, in its unobtrusive way, to impress even the casual passer.

The fenestration is simple but particularly happy in its relation to the door, sharply outlined by the brickwork of the doorway.

The floor plan, shown to scale on the four pages following, reveal the central reception hall as the pivotal point about which the house has been planned.

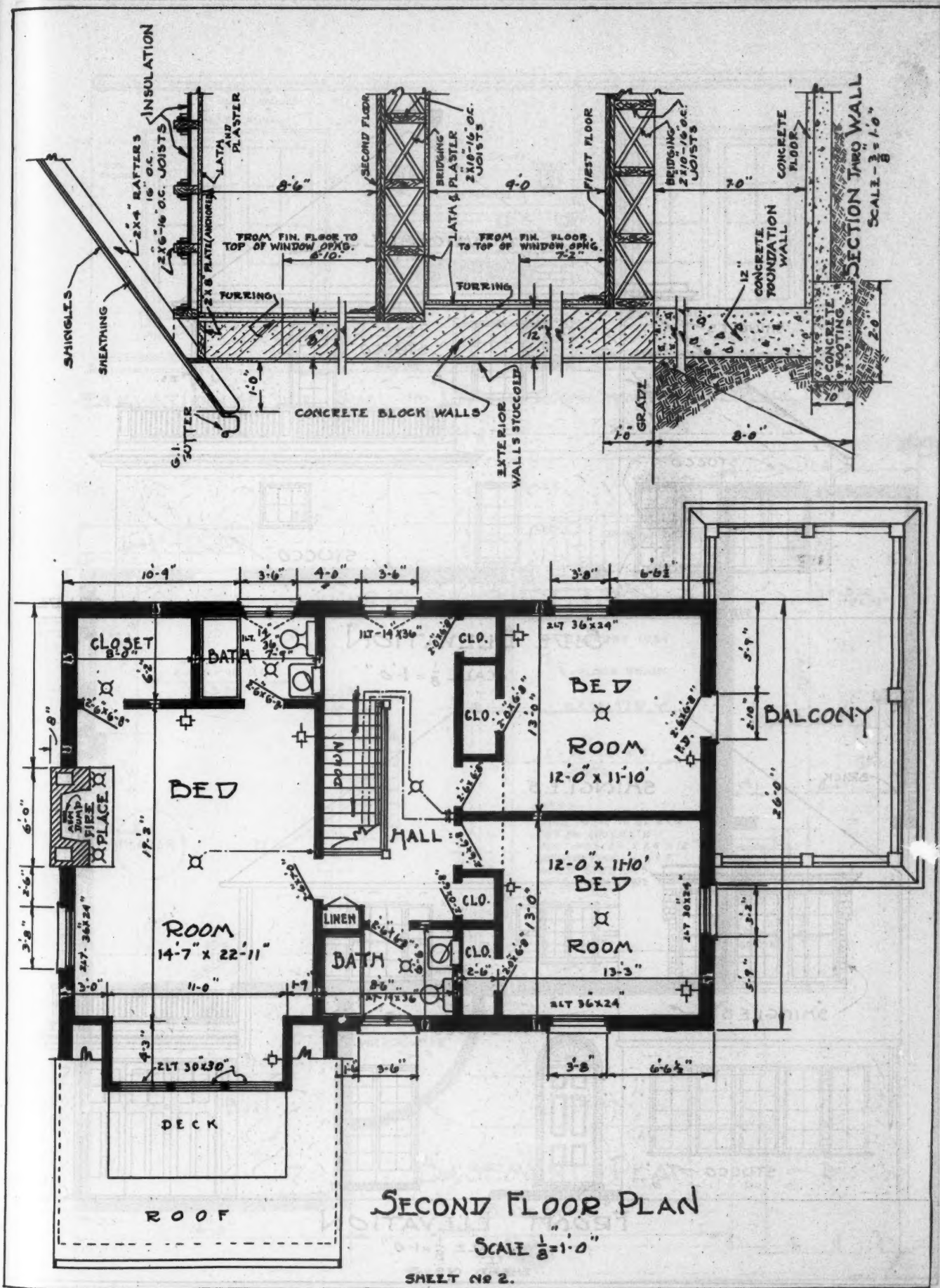
To the left is the living room, 15 by 25 feet, with the fireplace as its center of interest. The sun parlor virtually is an integral part of this long, well-proportioned room.

The dining room, of pleasing and efficient size, is reached from the kitchen through a well-designed pantry, which has built-in cases and is designed to house the refrigerator, so placed as to permit outside icing. The garage can be reached from the rear door of the central hall.

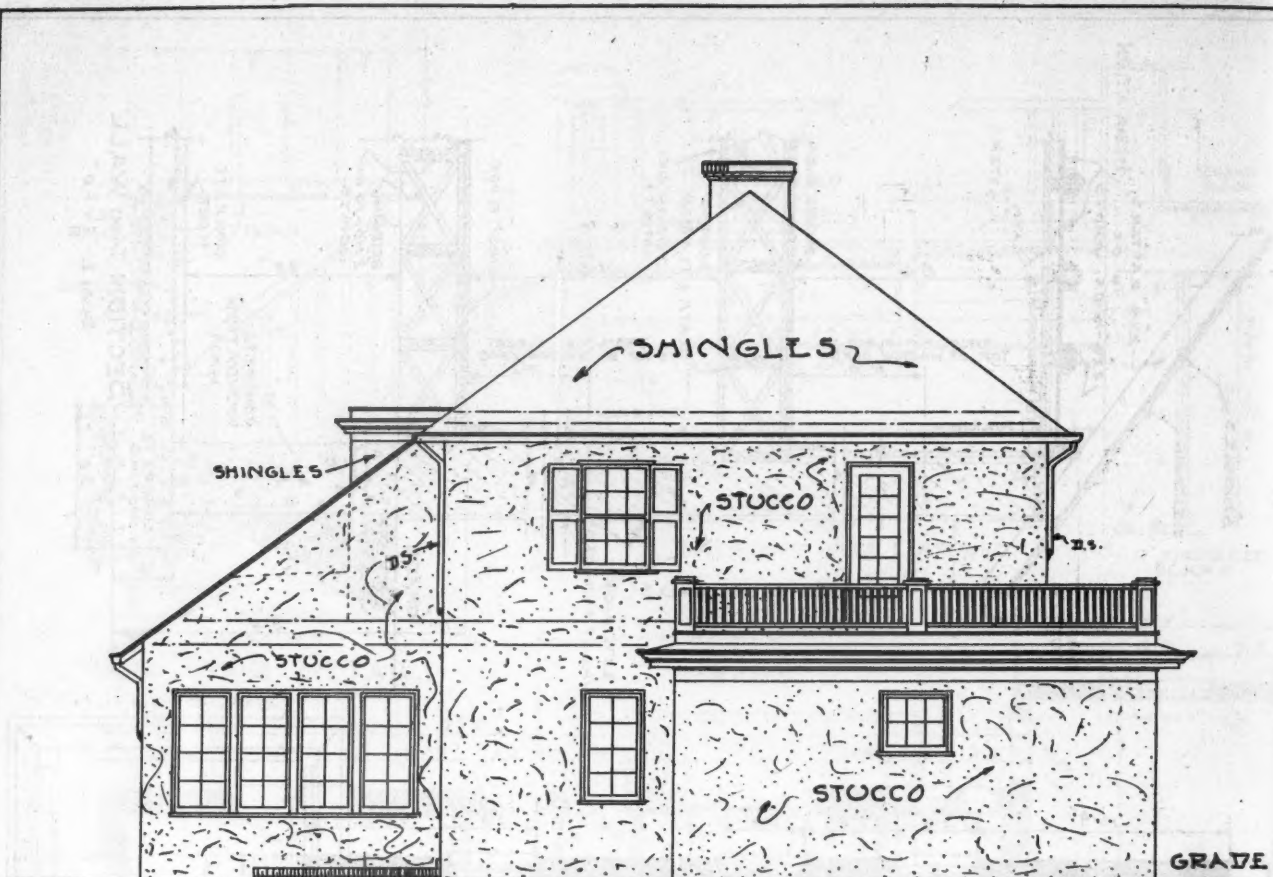
The second floor has three bedrooms of remarkable convenience, though the plan of the floor is not complicated. The house is 42 feet wide, including the garage, and 29 feet deep.



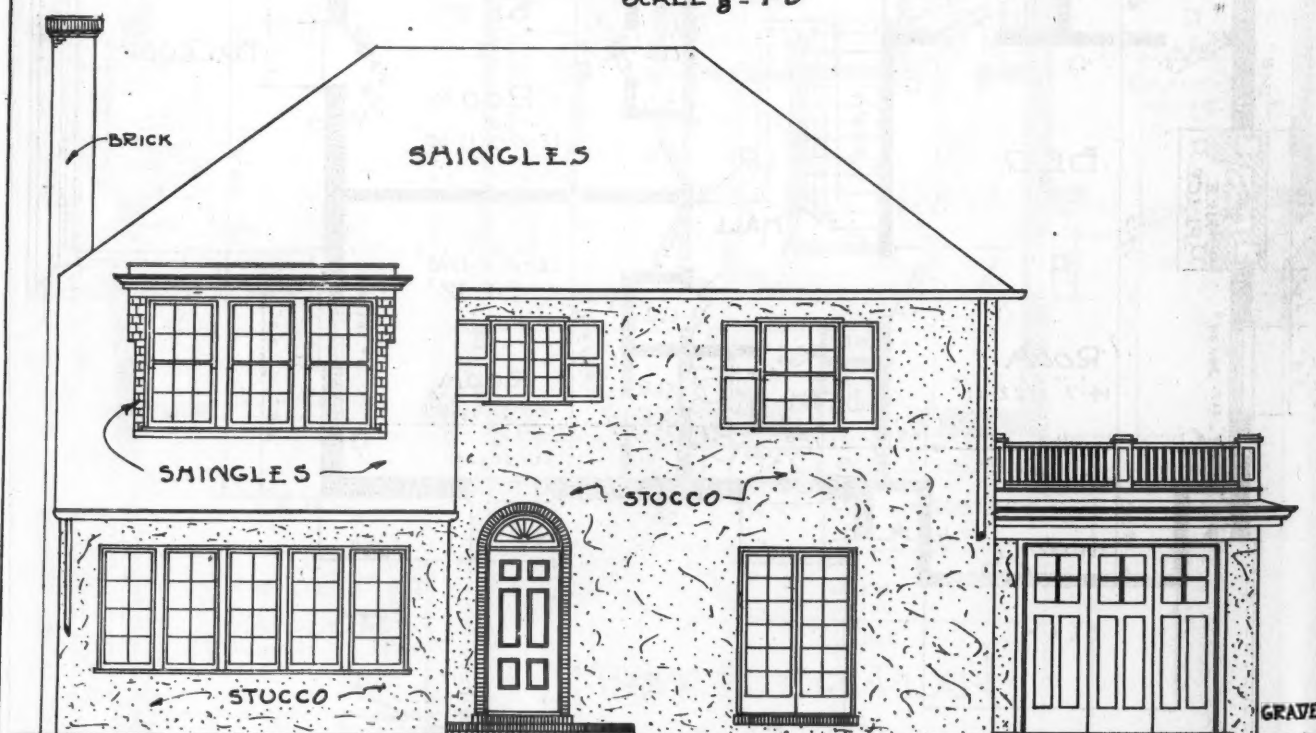
The Lines of the Roof as It Sweeps Over the Sun Parlor Give an Air of Hospitality to This Home of Seven Rooms and Two Baths. The floor plans and details of the stucco over concrete type of construction of this month's Front Cover Home are presented on the following pages.



Three Commodious Bedrooms Are Provided for on the Second Floor of the September Front Cover Home. Their arrangement allows for cross ventilation of all three. Two bedrooms and a wealth of closet room are features of the plan. The cross section of the wall shows construction details. The front and side elevations of the home are shown to scale on the next page.



SIDE ELEVATION

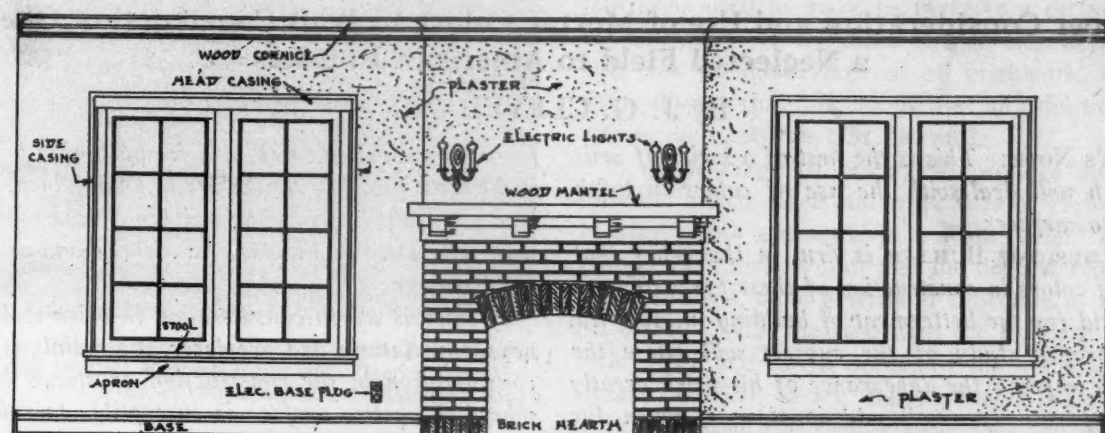
SCALE $\frac{1}{8} = 1'-0"$ 

FRONT ELEVATION

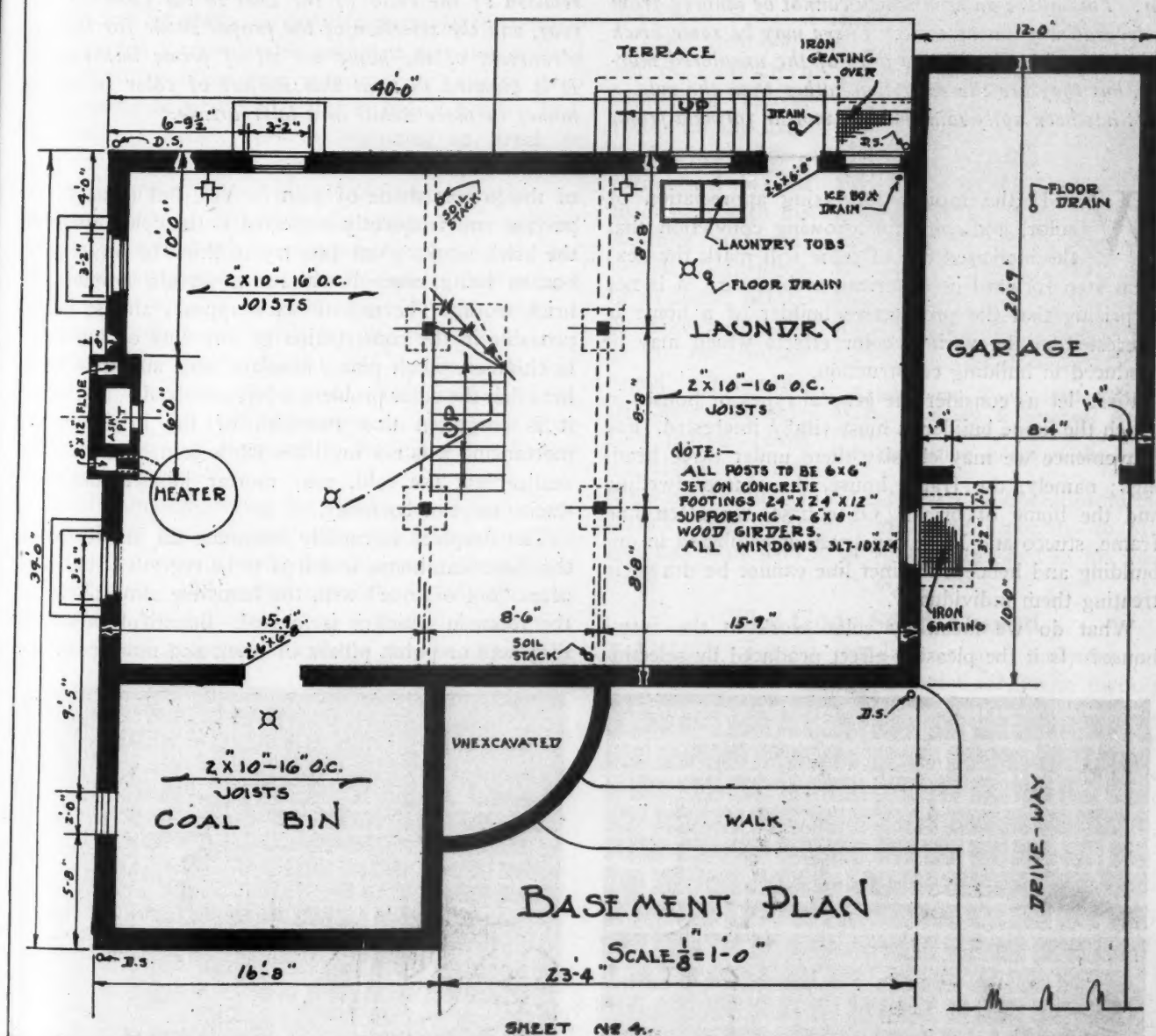
SCALE $\frac{1}{8} = 1'-0"$

SHEET NO. 3

The Front Elevation of the Front Cover Home Shows the Excellent Placing of the Windows and the Manner in Which the Dormer is Handled. The side elevation presents the details of the balustrade about the garage roof and the lighting of the garage. The basement plan and the detail of the fireplace design are shown on the next page.



ELEVATION OF SIDE WALL OF LIVING-ROOM SHOWING FIRE-PLACE DESIGN

SCALE $\frac{1}{4}'' = 1'-0''$ 

The Basement Plan of the Front Cover Home Shows the Coal Bin Carefully Separated from the Rest of the Room and Excellent Planning of Household Facilities. The fireplace and its relation to the windows are shown above.

Color Possibilities In Building

Proper Consideration and Use of Mortar Colors In Wall Construction Opens a Neglected Field to American Builders

By J. G. CLEVELAND

EDITOR'S NOTE: *This is the first of a series of articles which will deal with the use of colors in brick and stucco surfaces.*

The AMERICAN BUILDER is firm in the belief that the use of colors in construction of these types offers a fertile field for the betterment of building in America. And a proper study of the subject will allow the builder to improve the appearance of his work greatly at a comparatively small additional cost, when the permanence of the work is considered.

As Mr. Cleveland points out in this article, as much as one-fifth of a brick surface is composed of the mortar. This offers an area which cannot be ignored from a decorative point of view. There may be some brick which blend well with the gray of the uncolored mortar, but they are the exception rather than the rule.

It has been aptly said that the mortar forms a frame

for each individual brick, this frame cannot be ignored if the most pleasing results are to be obtained. This is true particularly when the builder chooses to make his work attractive by the use of a suitable and ornamental bond pattern.

If color is worth consideration in brick walls, chimneys, foundations and fireplaces, it certainly is a major consideration in the construction of stucco buildings, where the entire surface is susceptible to color treatment. In fact, in homes of this type, there probably is no other factor which is more important in determining the attractiveness of the builder's work. The relation of the color of the wall to the color of the roof, and the selection of the proper shade for the environment of the home are all of prime importance. It is planned to treat this subject of color in stucco homes in more detail in a later article.

WITH the rapidly increasing appreciation of color, and with the growing conviction that the increased use of color will mark the next great step forward in American architecture, it is not surprising that the prospective builder of a home is interested in the various color effects which may be produced in building construction.

First, let us consider the general types of houses in which the home builder is most vitally interested. For convenience we may classify them under three headings; namely, the frame house, the stucco dwelling and the home of brick. Of course, we often find frame, stucco and brick construction combined in one building and hence a distinct line cannot be drawn in treating them individually.

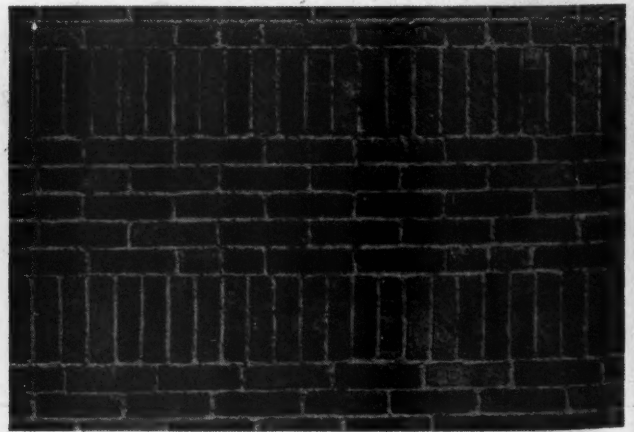
What do we mean by color work in the frame house? Is it the pleasing effect produced by selection

of the proper shade of paint? Yes, but equally important and frequently neglected is the color effect in the brick work. And just try to think of any frame houses being erected without a certain amount of brick work. The use of brick appears almost indispensable in the construction of any sort of building, in chimney, porch pillar, fireplace, etc., and it is right here that the color problem is left unsolved. Too often it is forgotten that one-fifth of the brickwork is mortar and it is not until the job is completed that we realize that the cold, gray mortar joint is not conducive to color harmony.

The fireplace is rapidly becoming an institution in the American home, and it is to be regretted that it is often "out of tone" with the homelike atmosphere of the room in which it is located. Beautiful chimneys, fireplaces or porch pillars of brick and mortar do not



The Section of English Bond Brick Wall Shown Here Shows the Predominance of the Mortar Surface in Determining the Effect of the Wall.



The Color of the Mortar Joints in This Common Bond Wall, with Soldier Courses Is Used to Blend Bricks of Different Shades, Making a Pleasingly Variegated Surface.



A Mortar Color Approximately that of the Brick Is Fitting for This Wall of Flemish Bond with Deep Raked Mortar Joints. This is an effective method of handling rough texture brick.

require extravagant expenditure. They are more the result of skill in the selection of pattern and the color of brick and mortar.

The use of stucco is comparatively in its infancy and yet for a considerable period it was not realized that anything other than a stucco of ordinary gray color could be produced. But already when we look at untinted stucco, perhaps beginning to streak or discolor, it makes us realize more than ever that, since Nature expresses herself in terms of color, art and architecture should do the same. The splendid effects brought forth in stucco by use of certain red and buff mortar colors assure the builder that the use of decorative color in architecture is not merely a matter of impulse or sentiment, but that it satisfies a desire which Mother Nature has taught us by her example. Color in stucco lends a rich warmth to the wall surface and it is astounding to learn how little color adds to cost, compared to the extent to which it adds to beauty.

Finally, in considering the third type of building—the home of brick—it may seem superfluous to dwell to any great extent on the advantages of the colored mortar joint. The public, especially during the past few years, has rapidly become educated to the fact that harmony in the brick wall can only be effected by



The Bold Pattern of the English Cross or Dutch Bond Illustrated Here Will Make a Striking Wall if the Mortar Color Is Chosen Properly.

tasteful and harmonious use of colored mortar. It is only necessary to compare the effect produced by colored mortar with those produced when ordinary mortar is used to make us perceive a certain discord in the latter. If we could but develop a critical eye and take particular note of all brickwork, we would easily discern that this one-fifth of all brickwork vitally affects the appearance of the wall.

A given range of brick will produce surprisingly different effects when laid in mortars of various colors. Mortar colors are made in a wide variety of shades from a rich, mellow buff and the deepest red, through warm browns, olive green and chocolate to the blackest black. As is the case with the majority of materials which add to the beauty of the home, great care should be taken to see that a reliable brand of color is selected and that proper directions are followed in mixing. It is only when such precautions are taken that we can be assured of the best results.

There are a number of reliable brands of mortar colors on the market but the building owner will do well to consult with his building material dealer, contractor or architect before he makes a decision as to the proper brand. Ordinarily the most dependable mortar color manufacturer is the

one who is willing to extend hearty co-operation to the architect and contractor, and most especially to Mr. Average Man who is so vitally interested in his new home.



The Gods Send Thread

UNDER present conditions any ambition of America to become a nation of home owners would be by no means impossible of fulfillment. The land is available, the materials are at hand, the necessary accumulation of credit exists; the courage, the endurance and the sacrifice of the people are not wanting. Let them begin, however slender their means, the building and perfecting of the national character by the building and adorning of a home which shall be worthy of the habitation of an American family, calm in the assurance that "the gods send thread for a web begun."

Here will be found that satisfaction which comes from possession and achievement. Here is the opportunity to express the soul in art. Here is the Sacred influence, here in the earth at our feet, around the hearthstone, which raises man to his true estate.

—CALVIN COOLIDGE.



Brick Panel, Town Hall, Clinton, Mass., Peabody & Stearns, Architects. The mortar serves to blend the contrasting colors of the brick.



Cloisters Along Either Side of the Blue Flagstone Paved Courtyard of the Aquila Court, Omaha, Aid the Pool and Canal in Effecting a Serenity Unusual in Commercial Buildings. Holabird & Roche, architects. For plans and description see next two pages.

A Shopping Center of Distinction

Exclusive Shops, Offices and Studios Are Combined in Unique Building of Pleasing Architecture Planned by Holabird and Roche, Architects

By NATHAN L. JACOBS

COMBINING the European artistic idea with an American shopping center, Aquila Court, Omaha's newest professional, artistic and commercial building, stands as a living monument to the memory of a man who believed in the artistry of business.

The building belongs to the estate which received its first profits from Aquila Cook. It is in line with the trend of the times and marks a departure in the conception of commercial buildings.

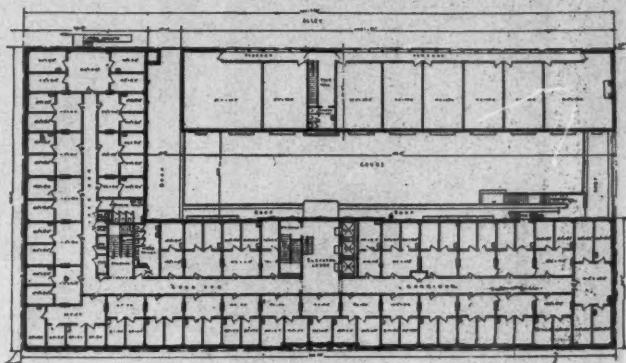
The most impressive and beautiful part of Aquila Court is, of course, the courtyard with its shrubbery, flowers and running water. The courtyard has been built so that it is approachable from nearly every first floor store room.

One part of the building is devoted to four floors of stores and office rooms. The second part of the building is occupied by two-story shop and studio buildings, similar to the Bargello in Florence, Italy.

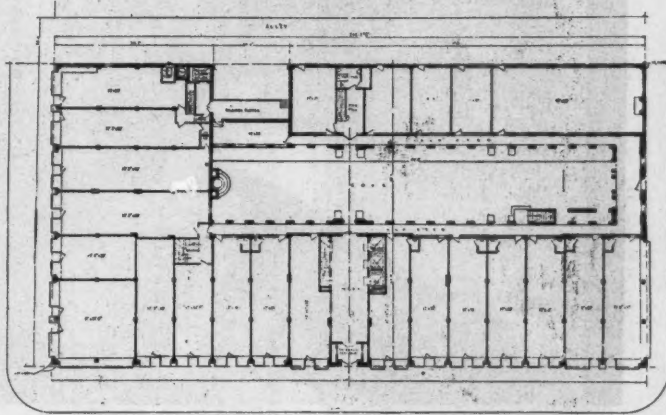
An imposing central pavilion with its modified Corinthian columns marks the entrance to the main building. The exterior is of buff Indiana limestone, the same material being used in Nebraska's new state capitol building in Lincoln. The walls in the vestibule and lobby are of Italian travertine stone with vaulted ceilings and "pineapple" doorways, being similar to the entrance hall of Mottram Hall, Cheshire, England. The floors are of Tennessee marble. All woodwork is of mahogany finish.

The corridors on the upper floors are most unusual, being wide, light and spacious. There are three high-

powered elevators in the building. The second floor of the building is reserved for modistes, ladies' tailors, lingerie and other kinds of business enterprise and professional service of refined appeal to ladies.



Second Floor Plan.



First Floor Plan.



Aquila Court, Omaha, Nebraska, Has High Grade Specialty Shops on the First and Second Floors, with Offices for Professional Men and Women on the Two Top Stories. The facade not shown in the picture is but two stories high with the second floor devoted to studios.



Stone Benches and Greenery Find a Fitting Setting in the Courtyard of Aquila Court.

Across the courtyard there are ten studios with north light from windows 12 feet high. Occupying these studios now are photographers, portrait and landscape painters, architects, artists and designers.

The architecture throughout is that of the Georgian period in England, which is of the same type as the development in Bath. Basically, it is the same type as that which later developed into the Adam period in England and the Empire period in France. It also corresponds in a way with the Louis XVI epoch.

Bluish flagstones from Wisconsin have been used entirely in the pavement within the beautiful courtyard. Tall poplars and baby evergreens surround the pond and long canal which is fed from the fountain at the east end of the court. Along both sides of the building run long cloisters. To give color and charm to the whole, a series of arches with their white reveals are combined with decorative Italian awnings at the windows.

There is a gay little tea room with sturdy Spanish furniture facing the south side of the courtyard. The tea room is a part of the two-story studio wing, which although designed in complete harmony with the sec-

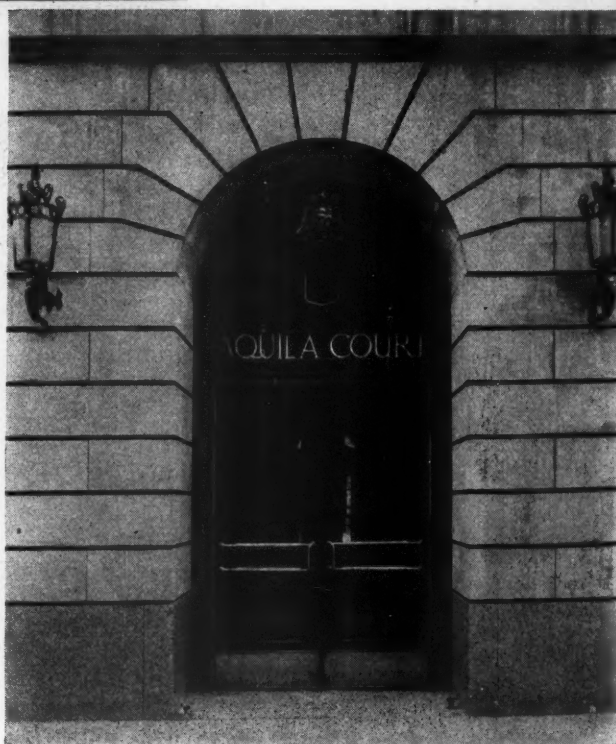
tion of the building devoted to offices, is more residential in type than commercial.

The transition from the four-story to the two-story building is handled unusually well at the Seventeenth street entrance to the courtyard.

The studios in this wing open from a balcony or loggia. A tiny kitchenette is just inside the door of each studio-apartment. In some cases there is a breakfast nook, located conveniently near the door. The big studio itself is two stories in height, fascinating in design. A large open fireplace is at one side.

From the large room a stairway leads to the balcony, which is located above the kitchenette and extends over the entrance loggia. A bathroom and sleeping quarters make up the balcony.

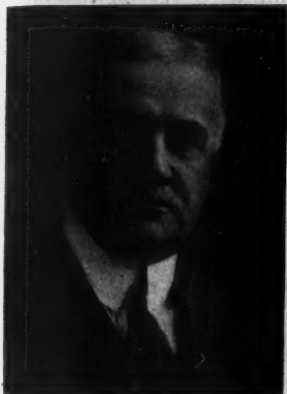
The owners of Aquila Court, Chester A. and Raymond C. Cook, have ordered Edwin S. Jewell, building manager for George & Company, Omaha realtors, to prohibit firms which have not a first-class reputation. They have also adopted the percentage-plan lease for the stores, providing that the merchants pay rent according to their gross sales. Holabird & Roche, Chicago architects, drew the plans.



The Entrance to the Courtyard Is Worthy of the Building Which it Graces.

WHO'S WHO IN THE BUILDING INDUSTRY

A Department of Late New Photographs of Men Who are Right Now in the Public Eye



NATHAN PAINE

Pres., Paine Lumber Co., Oshkosh, Wis., which has recently set a new production record in the quality door field by manufacturing the one millionth "Miracle" door.



F. W. KELLY

Pres., Portland Cement Assn., and Pres., the Helderberg Cement Co., Albany, N. Y., sailed for London Aug. 6, to address the World Convention of Cement Manufacturers at their hundredth anniversary meeting.



WALTER C. FAIN

Pres., Fain Mfg. Co., and of Fain Construction Co., Norfolk, Va., whose fold-away dining room with its ingenious disappearing table and chairs is solving the problem of compact planning for many architects and builders.

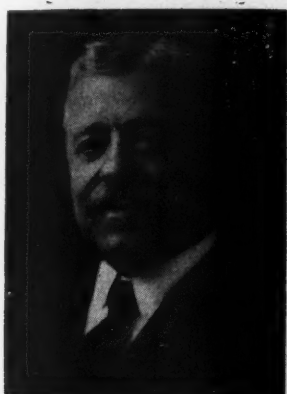
Ganby Photo



VIRGIL G. MARANI

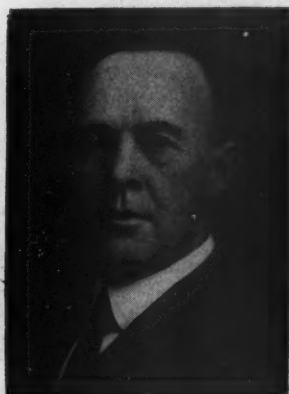
Chief Engineer, the Gypsum Industries, Chicago, has been very active in work of standardizing building codes.

Wallinger Photo



HENRY BURN

Re-elected President of the Wall-paper Manufacturers' Assn., of the U. S.
Underwood & Underwood Photo



E. E. MCCRAY

Pres., McCray Refrigerator Co., Kendallville, Ind., whose 34 years in this line makes him the pioneer of the quality refrigerator business.



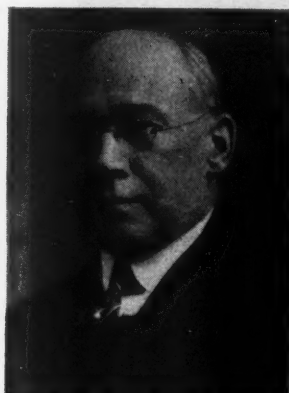
J. B. CLAY

Pres., Iowa Gate Co., Cedar Rapids, Ia., which has secured the contract for swine, cattle and sheep pens at the Ohio and Indiana State Fair Grounds.



H. C. ATKINS

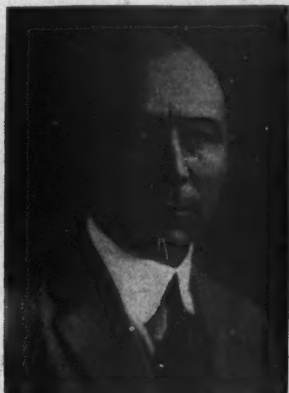
Pres., E. C. Atkins & Co., Indianapolis, Ind., whose father founded the saw, saw tool and machine knife business 67 years ago.



G. S. BROWN

Pres., Alpha Portland Cement Co., Easton, Pa., has just returned from a three months' trip in Japan, China and the Philippines, studying business conditions and the market for American building materials.

Griffin Photo



J. D. TENNANT

Vice-Pres. and General Manager, Long-Bell Lumber Co., Kansas City, which founded the new city of Longview on the Columbia River, Wash., and opened its big mill with impressive ceremonies on Aug. 1.

Tyner & Murphy Photo



TOM LEHON

of Chicago, the well-known "Mule Hide" roofing man, has launched another big campaign under the slogan, "Build, Re-pair, Re-roof NOW" and has enrolled dealers and builders in 2,000 towns for a drive this fall.

Daguerre Photo



J. G. HOPKINS

the veteran Ideal Concrete Machinery man of Cleveland; for 30 years an expert on plant layouts.

Hotel Service with Home Comfort

Unusual Apartment Hotel Constructed by the Niewenhous Co., Inc., Combines Pleasant Features of Hotel Life with Home Life

IT IS quite the accepted thing for the progressive builders in the smaller communities to be civic leaders in procuring and sponsoring public improvements of the highest type for the towns and cities in which they live, but the fact that the builders of the larger centers of population serve the same way in their communities often is not recognized as it should be. But the role of the builder in the larger metropolitan districts well may be typified by the activities of Mathias H. Niewenhous and Siebrand H. Niewenhous in the promotion and building of the Concourse Plaza Hotel, a \$2,800,000 structure at Grand Boulevard and Concourse between 161 and 162 streets, which is the pride of the Bronx in Greater New York.

For years residents of the Bronx had felt the need of a hotel of the best grade, which would not only provide homes for the growing number of families, but would furnish a suitable center for the social life of

the community. And being practical and progressive, the business men of the community were on the alert to provide such a place.

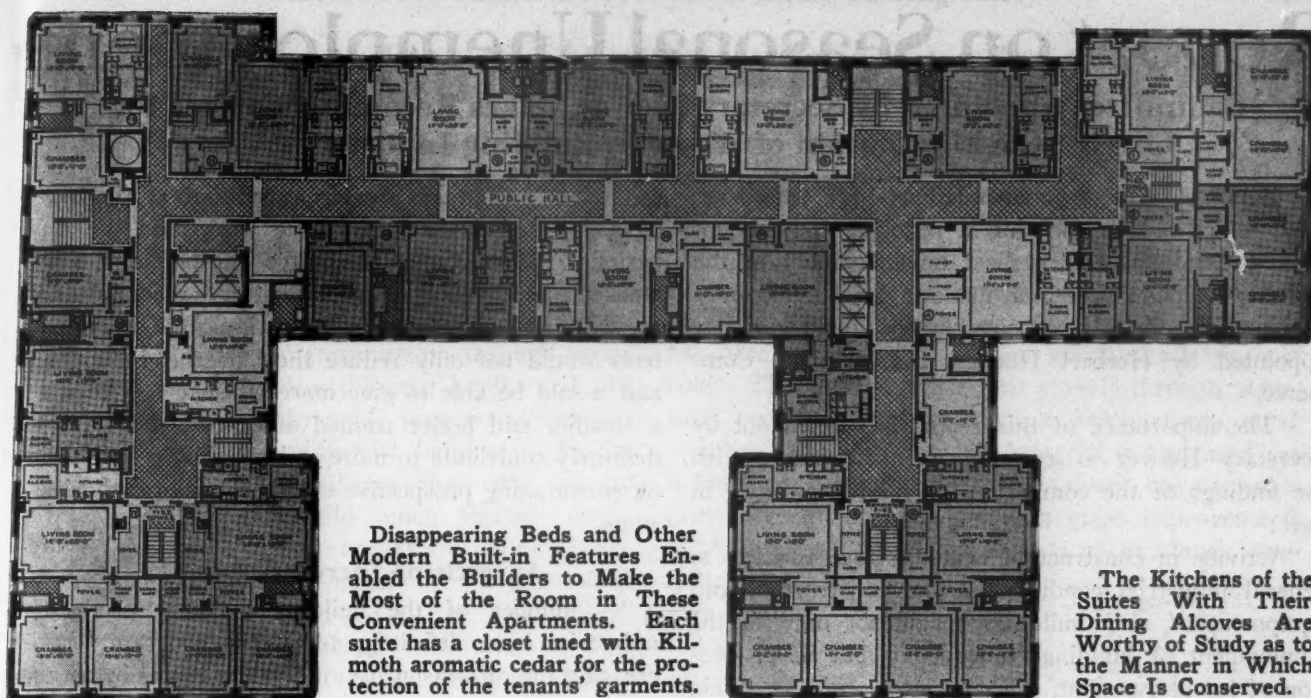
Early in April, 1921, a meeting of those interested was called and as a result, the Bronx Boosters, Inc., was organized with a capitalization of \$1,000,000. And prominent among those who gathered to promote the welfare of the Bronx were the Niewenhous brothers. A tract of land for the hotel was acquired a few months later at a cost of \$120,000. It is estimated that this land now, without the building, is worth \$310,000.

Ground was broken for the ten story hotel in 1922, and the contract went to those who had been deeply interested in the improvement since the start, the Niewenhous brothers.

And now the Bronx has a hotel which may well serve as a model for other communities planning a similar improvement. Designed by Maynicke and



The Concourse Plaza Hotel, The Bronx, New York, erected by the Niewenhous Co., Inc., Is a Model of What Is New in Apartment Hotel Construction. Maynicke & Franke and Paul Revere Henkle, Associate Architects.



Disappearing Beds and Other Modern Built-in Features Enabled the Builders to Make the Most of the Room in These Convenient Apartments. Each suite has a closet lined with Kilmoth aromatic cedar for the protection of the tenants' garments.

The Kitchens of the Suites With Their Dining Alcoves Are Worthy of Study as to the Manner in Which Space Is Conserved.

Francke and Paul Revere Henkel, associate architects, it contains many features which show careful consideration for the comfort of the guests and for the needs of the community.

On the first floor is the spacious lobby, and to the left, to care for the social needs of the Bronx, is a ballroom, which will care for 1,200 and in which a dance is given monthly to the tenants and their guests. To the right of the lobby is the main restaurant which has a glass enclosed summer garden, insuring cool comfort in spite of torrid days.

Opening from the attractive mezzanine balcony are three private dining rooms, much sought for wedding breakfasts and other similar functions. The huge kitchen is on the main floor, with the bakery on the floor beneath.

On the ground floor are six shops, rented solely with the comfort of the tenants of the building in mind. Built on a curve, as can be seen in the right side of the illustration, the shops add rather than detract from the architectural attractiveness of the building. The shops house a drug store, a flower shop, a ladies' beauty parlor, a cleaning and dyeing agency and similar enterprises. In the basement of the building is a commissary from which the tenants may order their provisions without the inconvenience of shopping in crowded markets.

But it is on the upper floors, where the two, three and four room apartments are grouped, that the care of the designers for the comfort of the guests is most plainly manifested.

In the two room suites, as in the larger apartments, the kitchen is a study in efficiency and pleasantness. Deliveries are made through special package receivers, the refrigerators are iced from the outside, and the refrigerator has three special drawer compartments for perishable foods. There is a cabinet included in

the equipment which supplies the need for storage space for culinary equipment. Smooth top gas ranges are installed as are built-in broom closets and ironing boards. The dining alcove is separated from the kitchen by two china closets.

The living room is a well furnished room, 13x20 feet. Two panels in the wall revolve and reveal two disappearing beds. Back of the bed closet is an alcove, furnished as a dressing closet and leading to the bathroom.

The three and four room apartments are similar to the two room ones, with the addition of one and two regular bed chambers respectively. One of the features of the hotel is that every apartment is furnished with a closet lined with Kilmoth aromatic cedar as a means of protecting clothing against the ravages of moths. Each suite has a foyer of pleasing size.

One of the unique features of the service accorded the tenants is the fitted playground on the roof, where children may be left under the care of competent attendants. A garage with a capacity of 180 cars is operated in conjunction with the hotel.

But this building, important though it is, is not the only contribution of the Niewenhous Co., Inc., to the growth of the Bronx, for recently they have undertaken the construction of the Bronx Municipal Terminal Market, to be located on the Harlem river, at 150 street. This wholesale market and storage building, to be constructed at a cost of \$2,900,000, will be six stories in height, and will have a frontage of 335 feet on Exterior street and a depth of 316. The facade will be of granite, face brick and limestone.

And these projects, with others, reveal the part the Niewenhous brothers are playing in the upbuilding of their community and the part that the builders of large communities play in the industrial growth of the United States.

Report on Seasonal Unemployment

Committee Appointed by Secretary Hoover Makes Recommendations for the Elimination of Waste in Building Industry

VALUABLE recommendations for measures which will be helpful in reducing the amount of seasonal and cyclical unemployment in the building industry have been made in a report recently made public by the seasonal operation committee appointed by Herbert Hoover, Secretary of Commerce.

The importance of this report is pointed out by Secretary Hoover in a statement made public with the findings of the committee. Mr. Hoover says, in part:

"Activity in construction bears a close relation to general industrial conditions. The construction and equipment of new buildings result not only in the employment of building trades labor but in production of lumber, cement, iron and steel products, brick, sand and gravel, lime, hardware, paint, electrical equipment, furniture, textiles and a variety of other materials. If building falls off there is bound to be a slackening in other lines of industry, resulting in unemployment, decreased purchasing power of employees and further depression.

"Public works are especially well adapted for scheduling with reference to seasonal as well as cyclical conditions, and the efforts to encourage long range planning of public works deserve the support of the public, legislators and administrative officials."

Custom Limits Working Season

Mr. Hoover emphasized the point made by the committee that custom, not climate, mainly is responsible for the seasonal idleness in the building industry, and urges cooperation between the various groups which affect construction work to the end that slack and boom periods be minimized in the industry.

The report of the committee, speaking of the role played by contractors, says:

"General contractors are in contact with more interests than any other single group within the construction industries. It is from them that much of the needed information must be drawn by other groups, and it is to their customers who control business and industrial projects, churches and hospitals, as well as to home builders, boards of education and others that the contractor should turn in order to encourage building during the dull periods. Intensive selling methods, especially in the smaller cities and towns, can do much in this respect."

The role of the architect in avoiding slumps in the industry is given by the committee as follows:

The Part of the Architect

"Through their contact with owners during the period preceding the letting of the contract, architects

can often encourage greater expedition at the start of a job and thus throw more work into the dull periods. Replies to a committee questionnaire show marked inactivity in many architects' offices during the fall and winter months. This indicates that architects would not only reduce their overhead expenses and would be able to give more efficient service with a steadier and better trained office force, but would definitely contribute to more stable building operations by encouraging prospective clients to make early decisions.

Advertising Increases Activity

"A number of the building material producing industries have definitely adopted a program of increasing the off season use of their products by means of advertising, furnishing advertising material to local dealers and research in the further use of their materials."

An important part of the committee's recommendations for the elimination of seasonal and cyclical unemployment refers to public works. The report says.

"The need for public works can usually be foreseen well in advance. Legislators, administrative officials and the public should unite to see:

"That contracts for public works are let when the work can be performed economically and with the least possible interference with private construction.

"That the government, whether national, state or local, has its construction program planned ahead for several years subject to such revision as new conditions may require.

"That the administrative officials are given latitude as to the time for awarding contracts and setting dates for their completion, so that such work can be undertaken when employment and other conditions are most favorable."

An exhaustive study of the question in connection with the survey by the Department of Commerce was made in Cedar Rapids, Iowa. At the suggestion of Fred A. Canfield, Commissioner of Conciliation of the United States Department of Labor, and formerly President of the Iowa State Federation of Labor, and at the request of the latter body as well as the Cedar Rapids Building Trades Council, the study was made under the direction of Professor W. F. Bristol, Extension Department, University of Iowa.

The Cedar Rapids Report

It revealed, according to Professor Bristol, that men in the building trades are unemployed during an average of four months out of every year. Following his study of the situation in Cedar Rapids, Professor

(Continued to page 190.)

More for Building—Less for Fuel!

What the Use of Insulation or Heat Stop Materials Means in the Reduction of Fuel Costs

By CLYDE A. MANN

MUCH accurate data has become available in recent years as to the rate at which heat leaves home by transmission through walls, ceilings and roofs of many different kinds; and this data is now being used by many progressive builders of dwellings, flats and industrial buildings. By its



Proper Home Construction in Ten Years Will Save \$1,400 in Fuel or the Price of a Grand Piano.

guidance they are able to build much warmer structures than ever were dreamed of in the "good old days" of our grandfathers.

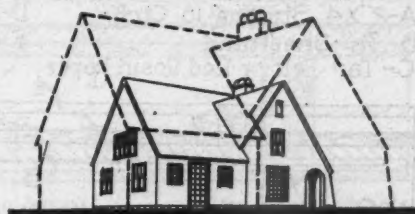
One has to say something in tribute to the exceptional builders of the primitive days who took the trouble to stuff the walls with some fibrous material to "keep the cold out," but even these wise and careful grandads did not know that most heat from a building leaves through the roof; at least 60 per cent of it goes that way, and is well worth stopping.

The new type of building is designed to keep the heat inside rather than the cold out and also designed

to keep out the heat of blazing summer days, which is mighty important throughout the United States. It has been found that it is heat which penetrates, not cold. The certainty that heat travels through structural materials—lumber, concrete, brick, stucco, et al.—unless some heat resistant material is also used (as it long has been used in refrigerators) has proved a great revelation which promises great improvements in the practical maintenance costs of buildings, especially fuel, but also repairs.

With necessary costs higher than a few years ago, this discovery of ways to reduce the costs which soon equal first costs of building

unless they are controlled, means much to the zest with which the public will go into building operations during the next few years. As low fuel cost is the twin of permanence in building, the result to be looked for



Without Proper Construction You Heat a House 50 Per Cent Larger.



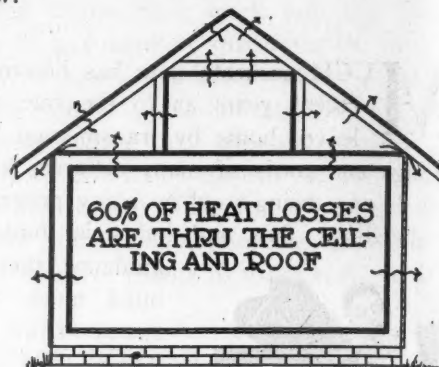
Here Is an Ingenious Rack Display of Various Types of Wall Construction Which Makes Simple the Explanation of the Advantages of Different Walls and Insulation Materials to Prospective Builders.

from the new trend of building is a gain in permanence that the country will be proud to note.

The data so far available shows that heat losses from small and large buildings are important. So important has the whole subject become that a national heat transmission committee, representing the national engineering and architectural bodies plus the associations of the various building material interests, and

room house properly built. The way they do it is to stop, in some way, the escape of the expensive heat. That is the trend in building and the far-sighted builders are meeting the demand by furnishing low fuel cost buildings and "pedigrees" to prove that the fuel cost is low.

Insurance underwriters naturally object to the use of combustible stuffing for walls, like hay or shavings, and there are many other objections. The primitive ways of the

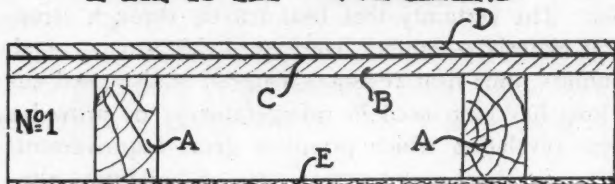


Watch the Ceiling Construction. Tests have shown that most of the heat escapes through ceilings.

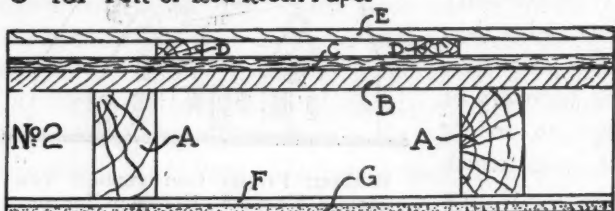
early day exceptional builder are taboo. But the way the heat is stopped on its exit from its inside job is by the use of some sort of lining of upper ceiling, or roof, and the walls with the inexpensive materials now on the market. With one inch of such materials approximately equal in heat resistance to over 20 inches of solid masonry, it is easy to see that after the second or third year the first cost of the lining has been covered by fuel savings beside the added comfort for occupants, and that from that time forward or the entire life of the building the fuel saving is a clear net profit on the use of that lining.

This saving is shown whether the building be a small bungalow on a prairie sub-division or a flat building or a factory. During the war the Fuel Administration allotted to factories their fuel supply

FRAME WALLS



A-2"x4" Studing 16" Ctrs. D-Drop Siding
B-7/8" Sheathing E-Wall Board
C-Tar Felt or Red Rosin Paper



A-2"x4" Studing -16" Ctra. E-Drop Siding
B-7/8" Sheathing F-Wood Lath
C-Heat Stop G-1/4" Plaster
D-7/8"x2" Furring Strips

No. 2 Is 80 Per Cent More Efficient Than No. 1.

the U. S. Bureau of Standards, held a conference some months ago at Washington, the result of which was a decided impetus to general recognition of the great vista of improvement which has been opened up. A statement issued at the time that this heat transmission committee was organized included this summary:

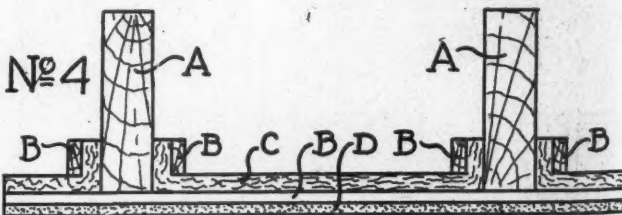
"The universally adopted types of construction, from the modest bungalow to the more pretentious dwelling, apartment and hotel building, involve the use of well-known materials (used singly or in combination with other materials) for the construction of the outside walls. The construction of ceilings, directly beneath the finished roof, may be any one of several types of lath and plaster. In all cases the *outside walls* and the *ceilings*, because of *improper materials* or *incorrect construction*, or both, constitute the means by which approximately *eight million tons of coal is wasted each year*. Many buildings are so hard to heat that they are often referred to as 'porous' or 'sieve' houses."

Building, therefore, is properly coming to be planned with the fact in mind that fuel cost grows to an amount equal to the first cost in the course of ten, or twenty or thirty years—according to the standard adopted. Folks have begun to awaken to the ways in which they can avoid buying fuel for a five-room house in quantities equal to that needed for a ten-

CEILING CONSTRUCTION



A-2"x8" Joists B-Wood Lath
C-1/4" Plaster



A-2"x8" Joists-16" Ctrs. C-Heat Stop
B-Wood Lath D-1/4" Plaster

No. 4 Is 67 1/2 Per Cent More Efficient Than No. 3.

on much the same basis; when the plant inspection showed that there was a possible saving of steam to be effected by covered pipes or plant improvement or better method of firing and regulation, the fuel allotment was fixed on the amount which properly should be used. Then if the consumption continued on the wasteful basis, the fuel supply would prove inadequate for continuous operation; a shut-down was the only alternative. This had a great effect in stimulating wise use of good fuel.

There also is to be considered the important factor of comfort. Nowadays folks are able and willing to pay well for comfort and consequently in building for rentals the question of temperature comfort is becoming increasingly necessary. The flats which have few changes of tenants and are assured of top rents are the ones which insure plenty of heat. Flimsy wall construction and loss of heat through the roof does not stack up well when the acid test is applied.

Builders who have wanted to do the best possible jobs have been deterred by the competition of poor building all around them. How can they identify their good buildings and prove their claims for comfort and fuel economy? That question is in a fair way to be answered in Chicago where a plan in operation provides certificates of "fuel cost rating" to the owners. This rating takes into consideration the structural materials and the workmanship quite as well as the usual matters of fuel and heating plant and equipment. The model homes being built by the *Chicago Daily News* are being rated by this method. The certificates will be put with the title papers and passed on to the next owner, subject to re-inspection

and re-rating if improvements are put in or if the heatability goes down instead of up. This method gives the good building, built by the far-sighted builder, the "pedigree" which it deserves.

STUCCO WALLS



A-2"x4" Studding, 16" Ctrs. D-Wood Lath
B-Wood Lath E-Asphalt Paper
C-Stucco



A-2"x4" Studding, 16" Ctrs. F-Metal Lath
B-Class B Heat Stop G-Stucco
C-7/8" T & G Sheathing H-Wood Lath
D-Red Rosin Paper J-Plaster
E-7/8"x2" Furring Strips

No. 8 Is 80 Per Cent More Efficient Than No. 7.

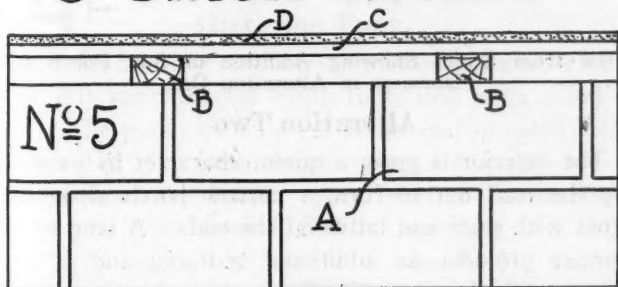
Possibly the Chicago plan will be adopted in other cities; it has been endorsed as a practical yardstick for measuring the values of homes and buildings by engineers for many important heating and material interests. Fuel interests like to know that they will not be "cussed" for poor heat in a building where their fuel is used, but where the poor heat is due to structural defects and not to the fuel only. Chairman Dudley F. Holtman, of the Heat Transmission Committee, who also is construction engineer for the National Lumber Manufacturers' Association, has said such a plan is practical for the entire country. "Certificates indicating the fuel cost rating of buildings unquestionably would have a very decided tendency to improve construction and to encourage good building," he added.

Asbestos interests are among those which are affected by the "rating" of buildings in this way, for they have said that not more than 5 per cent of the buildings now standing in Chicago, for instance, conserve their fuel in the way required by the Fuel Administration, by the adequate covering of boilers and pipes. As the fuel saving as well as the comfort for tenants are increased to the extent of 25 per cent or so, the need for pipe covering throughout the country is enormous. Builders of rated buildings are given a substantial credit for proper pipe and plant coverings.

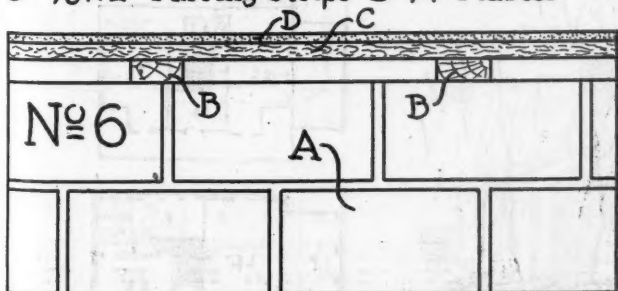
With the public demand now growing for knowledge before purchase of the "fuel cost" of buildings,

(Continued to page 188.)

8"-BRICK WALLS



A-8" Brick C-Wood Lath
B-7/8"x2" Furring Strips D-1/4" Plaster



A-8" Brick C-1/2" Class A Heat Stop
B-7/8"x2" Furring Strips D-1/4" Plaster

No. 6 Is 33 1/3 Per Cent More Efficient Than No. 5.

SUGGESTIONS FOR REMODELING

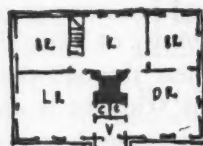
A series of very helpful drawings from the book, "Better Homes from Old Houses," prepared and copyrighted, 1924, by The Barrett Company. This series will be a regular feature of the American Builder during the next three months.—The Editor.

Project No. 4—The Old Colonial Cottage

Old Colonial Cottage Exterior and Floor Plans Before Alteration



Exterior View of Old House from the Street



First Floor

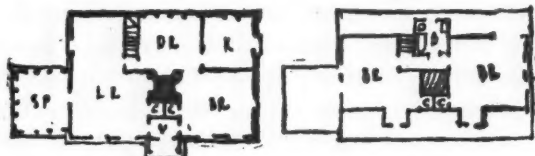


Second Floor

Plans of Old House

FROM the days when our colonial forefathers originated this type of house, until today, it has been duplicated numerous times in almost every section of our land.

Hardly any type could be adaptable to more comfortable, artistic and economical changes. A wide choice of ideas for altering it is offered in these pages.



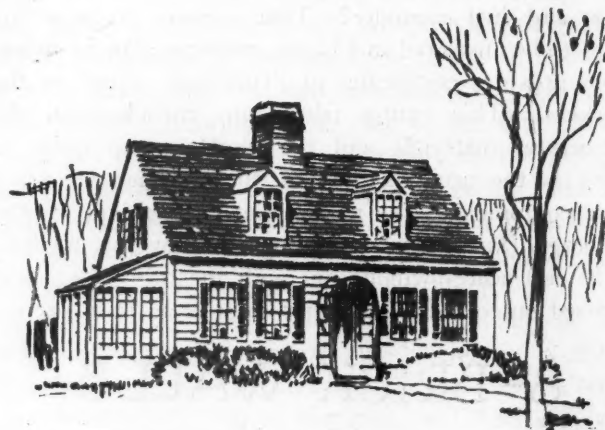
First Floor

Second Floor

Plans of Alteration One.

Alteration One

A sun porch opening from the living room is added at the left. On the second floor two dormers in front increase light and air in the bedrooms and a large dormer in the rear gives space for a bathroom. Minor interior changes increase the comfort of the house. Approximate cost, exclusive of plumbing, is \$500.



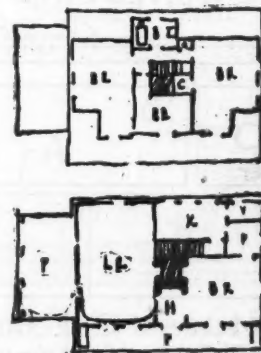
View from Street Showing Addition of Sun Porch and Dormers in Alteration One

Alteration Two

The exterior is given a quaint character by extending the roof out to form a narrow porch along the front with seats and lattice at the ends. A long front dormer provides an additional bedroom and a rear dormer a bathroom. The living room is squared out and a new staircase built. Cost, approximately \$1,400.

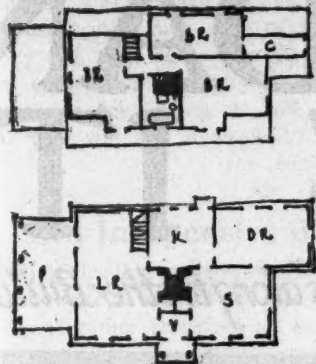


View of House Showing Changed Appearance With Alteration Two Completed



First Floor Plan
Second Floor Plan Above

Alteration Three



First Floor Plan
Second Floor Plan Above

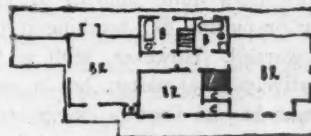


View from Street Showing Dining Room Extension on the Right Side in Alteration Three

This alteration retains all the charm of the simple cottage, yet provides additional space on both floors. The former bedroom at the right of the kitchen is extended to make a dining room. The long front dormer enlarges the main bedrooms and gives space for a bathroom; at the rear another dormer creates an additional bedroom. The approximate cost without plumbing is \$1,800.



View from Street Showing Alteration Four Completed



First Floor Plan
Second Floor Plan Above

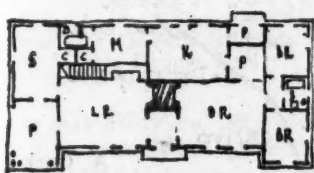
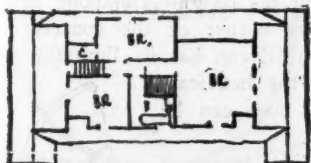
Alteration Four

Here the house is considerably enlarged; a new wing at the left increases the living room and adds a bedroom. The porch extends out at the end to catch the breeze. The long front dormer gives full height bedrooms and a rear dormer space for two bathrooms. Cost of new work about \$3,800.

Alteration Five

This plan shows a very attractive scheme for remodeling. All of the additions are confined to the ground floor in bungalow style. A new wing is built at each end of the house, the right to contain two guest rooms and bath and the left a study and porch. Approximate cost, \$6,000.

Next month we will take up The Mid-Victorian House.



First Floor Plan
Second Floor Plan Above



Alteration Five, of Which This is a Left Side and Front View Shows a Semi-Bungalow Treatment with the Cottage Character Retained



HOW DAN DOES IT.

A Department for Passing "Life Savers" along to other Builders.

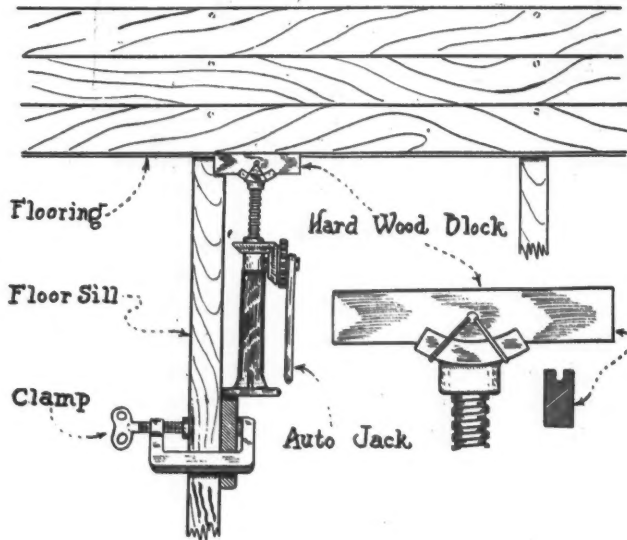
\$2 for an Idea

Dan is an ingenious cuss. Nothing ever stumps him. He always knows the way out when he runs into a tough problem out on the job or in the office. Dan is going to edit this Department and will pay \$2.00 each for every good idea he can use here to show and tell other builders "how to do it." Send him a rough sketch and a short description of what the tough job was and how you handled it.

Address Dan Do-It, care of American Builder, 1827 Prairie Avenue, Chicago, Ill.

Improvised Flooring Clamp

IT is sometimes quite difficult to get a good job laying flooring or putting on sheathing if the material is crooked or badly warped. However, with a flooring clamp this is a comparatively easy matter, but it sometimes happens that the workman has no flooring clamp or that more than one is needed. In either case one can be quickly improvised as shown in the sketch.



The Auto Jack Can Be Made to Serve as an Emergency Floor Clamp.

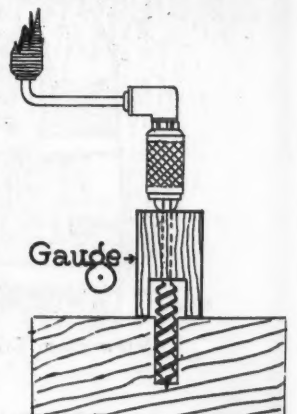
Here it is seen that the familiar auto jack is pressed into service. A jack of the screw type is best. As shown a block of wood secured to the floor sill by means of a heavy clamp forms a stop for the foot of the jack. A grooved piece of flooring is wired to the top of the jack, being notched to fit the cap. It is then applied as shown, and pressure applied by operating the jack handle until the board is forced into the proper position.

This clamp is only intended to be used when a regular clamp is not available as it would be impractical for anything but emergencies.

HAROLD JACKSON, Kankakee, Ill.

To Gauge Auger Holes

THE gauge we are showing by the accompanying illustration is made of a piece of 2-inch by 2-inch stuff. The block should be cut square at both ends, making it the proper length. Then the notch shown at the bottom is cut out with a rip saw and a chisel. This done, a hole large enough to permit the small end of the bit to pass through is bored through the block, as indicated by the dotted lines. The small end of the bit is slipped through this hole before it is attached to the brace. The advantage of this gauge lies in the fact that it gauges automatically—that is to say, when the hole is as deep as it is wanted the gauge will keep the bit from boring any farther. A few turns after the brace strikes the gauge will loosen the bit so it can easily be removed.



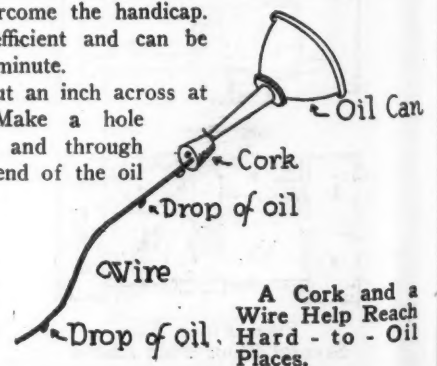
This Simple Device Will Assure Holes of Proper Depth.

H. H. SIEGLE, Emporia, Kan.

An Oil Can Spout Extension

HOW often we find that the short, straight spout of an ordinary oil can will not reach into some out-of-the-way place. Maybe it is the springs of an automobile or truck; maybe it is some unhandy corner of the concrete mixer. Everybody knows that the oil can has its limitations. Here is how I have overcome the handicap. It is simple and efficient and can be accomplished in a minute.

Take a cork about an inch across at the large end. Make a hole slightly off center, and through this hole poke the end of the oil can spout. Then, near the spout stick a piece of copper wire a foot or more in length, allowing it to touch the end of the



spout. The "extension" is made and ready for use.

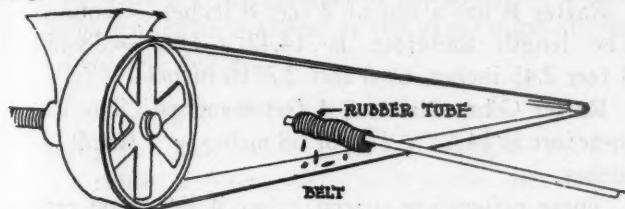
Catch the idea? When the can is inverted and "thumbed" in the usual way, each drop of oil runs down the wire to the very end, then drops off. By bending the wire into any desired curve, you can reach around the corners, thus putting the oil right where it will do the most good. Try it out. You will find it works to a "T."

JOE ALEXANDER, Madison, Wis.



An Inexpensive Belt Dressing

WHILE loading my wagon with 2 by 4's and inch boards last week at a local portable sawmill the drive belt ran off. I was rather surprised to see the engineer replace the belt and then dig out a piece of rubber auto tube about a foot long.



When the Belt Slips and There Is No Belt Dressing Available, Dan Lets a Melting Inner Tube Serve to Keep the Wheels Turning.

"Now what?" I asked. Then he proceeded to stick the poker through the tube, put it in the engine firebox—yes, the same one that had been going for nineteen years—and when it was going good he held the dripping rubber tube on the inside of the belt and ran the belt slowly.

He said that was just the best belt dressing he knew of for a rubber belt and that his slipping trouble would be over for a few days. But he didn't know whether it would be satisfactory for a canvas belt.

I tried it when sawing up a buzz pile the next week and it seemed to work well on my rubber belt.

EARL ROGERS, Pemberville, Ohio.



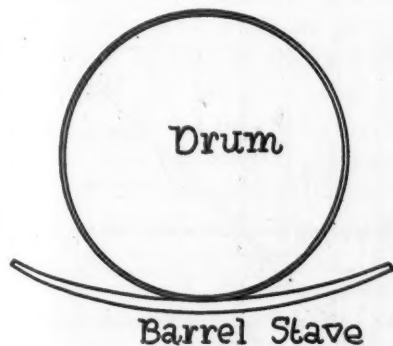
Barrel Stave for Pivoting Heavy Drums

HEAVY drums and barrels, in spite of their weight, are usually quite easily moved by rolling. However, when a turn is to be made, the turning is quite difficult and requires considerable effort.

Turning may be greatly simplified if the drum is rolled onto a stave from a stout oak barrel.

The bellied portion of the stave provides a pivot point which the drum is centered and turned. If the stave is comparatively flat, it may be planed to sharper point on the rounded part, giving a better pivot. Using a barrel stave in this manner, heavy drums may be turned with about half the man power ordinarily required.

It is little ideas such as this, when applied on the job, that do



A Barrel Stave Makes the Handling of Heavy Drums Easier.

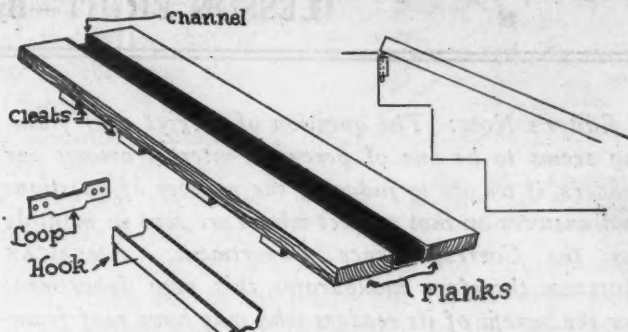
much to save worry and hard work and make the work move forward faster and with less friction. The man who can show the "Boss" that he knows a few of these kinks will have no trouble in convincing the boss of his value.

LOWELL R. BUTCHER, Des Moines, Iowa.

Runway for Wheelbarrows

WHERE much wheeling with a wheelbarrow is to be done over a flight of steps, the simple runway illustrated will prove very convenient. It can be readily removed when the wheeling is finished and stored until it is again needed.

The runway consists of a length of light channel steel, flanked on each side with a plank which provides footing for the workmen. At the upper end of the channel, the



The Runway Will Make for Ease and Speed on Jobs Where Material Must Be Wheeled Upstairs and Is So Constructed That It May Serve Year After Year.

flanges are trimmed off for several inches back from the end and the web is turned down to form a hook which fits into the strap-iron loop fastened to the top step of the flight. The loop should be placed so that the top of the channel web comes flush with the top of the upper step.

Metal cleats are fastened to the under side of the channel and planks, combining the three into one strong unit. As the channel itself is the runway for the wheel of the barrow, countersunk head bolts should be used in attaching the cleats to the channel. If necessary, wooden strips may be nailed to the upper sides of the planks to give better footing. The completed runway is so substantial that it will last almost indefinitely.

LOWELL R. BUTCHER, Des Moines, Iowa.



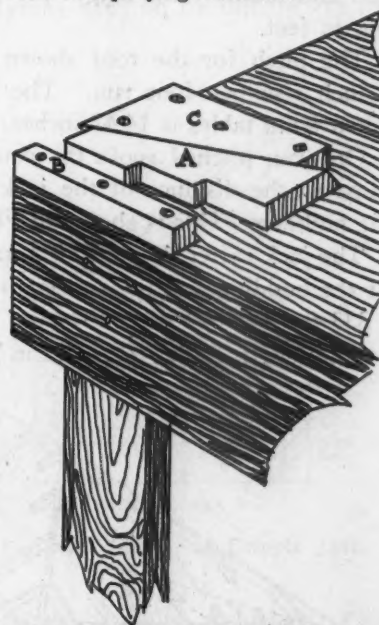
A Convenient Bench Stop

A BENCH stop which holds material to be planed better than any other device I know is easily made by the carpenter, as shown in the accompanying illustration.

It is composed of three pieces of wood. Pieces B and C are fastened to the workbench with screws while piece A remains loose and slides back and forth. This piece, A, is made in the shape of a wedge and one edge is beveled to fit the bevel of the piece C, as shown in the illustration.

By placing the material to be planed in the notch best suited to its thickness and pushing it forward it is wedged fast and is almost immovable while the wood is being planed. A slight pull backward loosens it instantly.

E. D. HURLEY, Sweetwater, Tex.



The Bench Stop Shown in the Drawing Is Almost Automatic in Its Operation. A slight backward pull frees the board being worked.

INSTRUCTIONS IN ROOF FRAMING

LESSON EIGHT—By JOHN T. NEUFELD

Editor's Note: The question of correct roof framing seems to be one of perennial interest among our readers, if we are to judge by the number of questions and answers on that subject which are sent in monthly for the Correspondence Department. AMERICAN BUILDER therefore inaugurates this new department for the benefit of its readers who may have roof framing problems. Write in your problem and Mr. Neufeld will answer it, and some questions and answers will appear in this department of AMERICAN BUILDER for the benefit of others who may be interested. We want to make this department the place where YOU can solve all your roofing problems.

Lengths and Cuts for Jack Rafters

THE first thing that we should note about jack rafters is that they lie in the same plane with the common rafter. They are usually spaced the same and have the same pitch. The only difference is that they are shorter.

As they have the same pitch they therefore also have the same length per foot run as the common rafter.

To find the length of the jack rafter we must first know the pitch, then find the length per foot run, then find the total run in feet of the jack rafter in question and multiply the length per foot run by the total run in feet.

The pitch for the roof shown in Fig. 40 is $\frac{1}{3}$ or 8 inch rise per foot run. The length per foot run taken from tables is 14.42 inches.

On even pitched roofs the run of each jack is the same as the distance of the jack from the corner of the building. This is shown in Fig. 40.

The jack rafter A is 1 foot 4 inches from the corner of the building and the run is also 1 foot 4 inches, or 1.333 feet.

The length is the total run in feet times the length

per foot run. Therefore the length is $14.42 \text{ inches} \times 1.333 = 19.2218 = 19.22 \text{ inches}$.

Rafter B has a run of 2 feet 8 inches = 2.667 feet. The length therefore is $14.42 \times 2.667 = 38.458 = 3 \text{ feet } 2.45 \text{ inches}$, or $3 \text{ feet } 2\frac{9}{16} \text{ inches}$.

Rafter C has a run of 4 feet 0 inches. The length therefore is $14.42 \times 4 = 57.68 \text{ inches} = 4 \text{ feet } 9\frac{11}{16} \text{ inches}$.

These rafters are spaced 1 foot 4 inches on centers and therefore the run of each succeeding one is 1 foot 4 inches more than the next shorter one. The length of the second rafter will be twice the length of the first, the length of the third will be three times the length of the first, and so on.

After the length of the first is found the length of any other one may be found by adding the length of the first to each one to find the length of the next longer one.

Side Cut

There are several ways to obtain the side cut for the jack. One rule is: "Take the length of the common rafter on one arm of the square and the run of the common rafter on the other."

Fig. 41 illustrates the principle of this rule. A huge square is drawn with feet divisions in place of inches. If the roof was flat like a floor then the side cut would be 45 degrees. On one arm of the square the length of the common rafter is taken. On the other the distance from the foot of the jack to the corner of the building is taken. This last distance is the same as

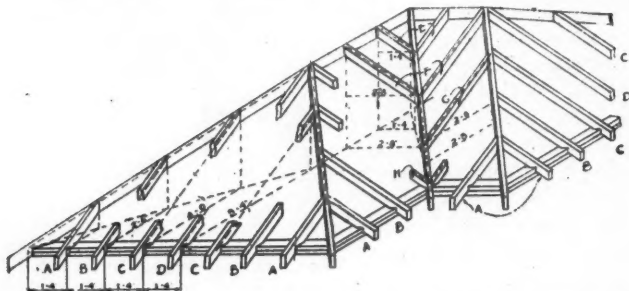
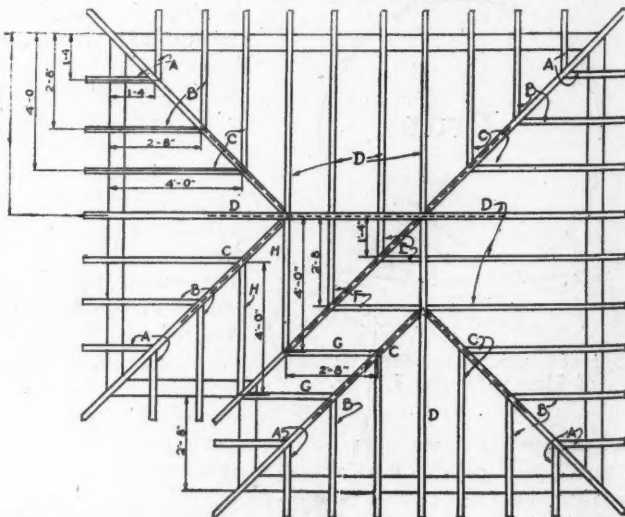


Fig. 40. Illustrating the Run of the Different Jack Rafters.



the run of the rafter, therefore the rule states it as the run of the rafter. In reality the rule should say: Take the length of the rafter on the blade, and on the tongue take the distance from the foot of the rafter to the corner of the plate or to the foot of the hip rafter.

In place of taking the full length of the common rafter and the full run we may also take the "length in inches per foot run" on one arm and 12 inches on the other arm.

Thus the length per foot run for this pitch is 14.42 inches. The figures 14 5/12 and 12 would give the side cut.

Always mark along the arm of the square on which the largest number is taken, as the angle must always be less than 45 degrees.

Length and Cut for Rafter B

Taking the jack rafter B as an example, we find it has a run of 2 2/3 feet. The pitch is the same as for

Fig. 41. Illustrating the Side Cut Rule.

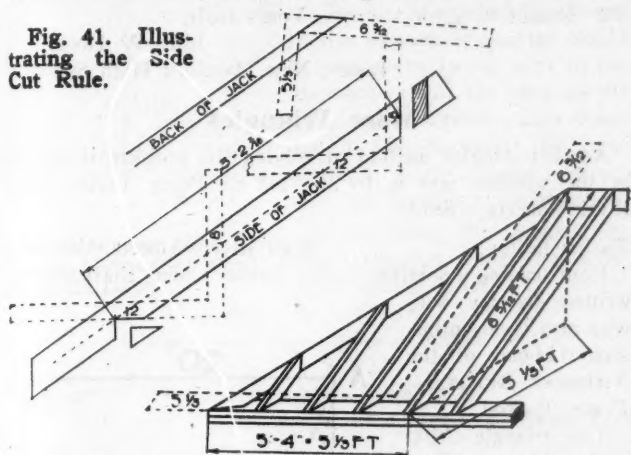


Fig. 42. Showing Seat, Plumb and Side Cut of Rafter.

the common rafter, 1/3 pitch or 8 inch rise per foot run. The length per foot run is 14.41 inches. The length of rafter B is $14.42 \times 2.667 = 38.458$ inches = 3 feet 27/16 inches.

This length theoretically is to the center of the hip rafter as shown by the dotted lines in the plan view, Fig. 40. If we measure this length along the longest side of the jack rafter we get approximately the same results. In Fig. 42 the line along which the length should be laid out is indicated.

The next step now is to lay out the seat and plumb cuts. This operation is the same for the jack rafters as it is for common rafters. Take 8 inches on the tongue and 12 on the blade of the square as the "rise per foot run" is 8 inches.

Next lay off the side cut as we have previously found using the length of the common rafter and the run of the common rafter on the square, 65/12 and 5 1/3 in this case.

We may also use the length per foot run and 12 inches as explained. This would be 14 5/12 on the blade and 12 on the tongue. The bevel would be the same.

In Fig. 43 another method for finding the side cut of jack rafter is shown.

If we look on the plan of the roof Fig. 40 we will note that the jack rafter on the plan makes a 45 degree angle with the hip rafter. The angle changes with the pitch of the roof. The object therefore is to lay out an angle on the back of the jack, that will be 45 degrees in plan.

First: lay out a plumb line on the side of the rafter that is to be the long side. (See Fig. 43).

Second: measure back at right angles to this line, the same thickness as the rafter itself. Lay out another plumb line through this point. This will be the plumb line for the other side of the rafter and may be brought to the other side by squaring across.

The line A B is the line of cut on the longest side. The line C D is the line of cut on the shortest side. The line C A is the line of cut on the back of rafter.

Valley Jacks

Valley jacks will have only one cut at the top. This is the plumb cut and the same figures are used on the square as for the plumb cut on the common rafter. You will note from the illustration that the upper end of the valley jack is the same as the upper end of the common rafter.

The lower end of the valley jack requires a plumb cut for which the same figures are used as for the upper end of the hip jack and common rafter.

It also requires a side cut. The same figures are used as for the upper end of the hip jack.

Cripple Jacks

Cripple jacks (See "G" Fig. 40) require side cuts at both ends. The figures used on the square are the same.

Fig. 44 shows a plain view and also an isometric view of the cripple rafter G. The run is 2 feet 8 inches or 2 2/3 feet. The length is $2.667 \times 14.42 = 38.458$ feet = 3 feet 27/16 inches. The length thus found is from center of valley to center of hip.

One-half the thickness of each must therefore be deducted. This would be the same as the full thickness of one rafter. The distance indicated by x in Fig. 44 is the distance

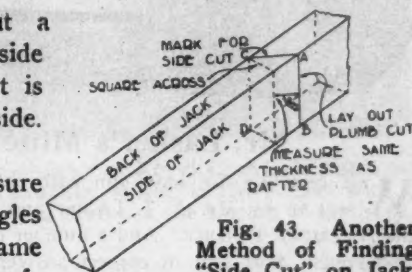


Fig. 43. Another Method of Finding "Side Cut" on Jack.

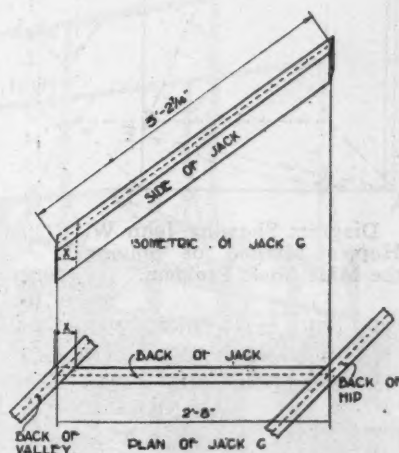


Fig. 44. Length of Cripple Jack.

(Continued to page 188.)



CORRESPONDENCE

Questions Answered—Ideas Exchanged

Mr. Lasker's Mine Shaft

WE certainly did have fun with the mine shaft problem sent in by Mr. A. J. Lasker and published recently in the AMERICAN BUILDER. And a number of the Correspondence Department fans sent in correct answers.

For the most part the answers followed three definite plans in working out the depth of the mine shaft. These three plans are illustrated with diagrams and the solutions of two boys are published, not because they are the best, but because we are interested in seeing the young fellows make an interesting application of their school work.

A number of the solutions treat the mine shaft with the plumb line swung across it as a right angle triangle as the problem is solved by John W. Hopp, a junior in the New

Hartford high school, New Hartford, N. Y., and the son of a contractor.

New Hartford, N. Y.

To the Editor:

In reply to the problem submitted to your department by A. J. Lasker of Shawnee, Okla., I have found the following proof:

GIVEN: Rectangle ABCD.

$BE = AB$.

$ED = 1$ foot.

$BC = 20$ feet.

TO FIND: Length of line AB.

Reasons are as stated in Plane Geometry by Durrell & Arnold.

STEPS:

1. Angle BCD is a right angle.

2. Triangle BCE is a right triangle.

3. $BE^2 = BC^2 + CE^2$.

4. $BC^2 = (20)^2$ or 400.

5. $AB = CD$.

6. $CE + ED = CD$.

7. $CE + ED = AB$.

8. $BE = AB$.

9. $CE + ED = BE$.

10. $CE = BE - 1$.

11. $(BE - 1)^2 = BE^2 - 2(BE) + 1$.

12. $BE^2 = 400 + BE^2 - 2(BE) + 1$.

13. Simplifying: $BE^2 = 400 + BE^2 - 2(BE) + 1$.

$2(BE) = 400 + 1$.

$BE = 200.5$.

14. $AB = 200.5$ or $200' 6''$.—ANS.

REASONS:

1. A rectangle is a parallelogram whose angles are right angles.

2. A right triangle is a triangle one of whose angles is a right angle.

3. The square on the hypotenuse of a right triangle is equal to the sum of the squares on the legs.

4. By hypothesis $BC = 20$.

5. The opposite sides of a parallelogram are equal.

6. The whole is equal to the sum of its parts.

7. A quantity may be substituted for its equal in any process.

8. By hypothesis.

9. Things equal to the same or equal things are equal to each other.

10. $ED = 1$ by hypothesis. Reason 7.

11. Like powers of equals are equal.

12. Reason 7.

14. Reason 8.

Yours truly,

JOHN W. HOPP,

Junior, New Hartford High School.

More Triangles

Another popular method of solving the problem is typified by the solution sent in by the son of Percy Taylor, High River, Alberta, Canada.

To the Editor:

High River, Alberta, Canada.

I am sending a solution to Mr. Lasker's mine shaft problem written by my son, who also is an enthusiastic reader of the AMERICAN BUILDER.—PERCY TAYLOR.

The triangle ABC is isosceles as $AB = AC$. Drop a perpendicular from A to BC. Then the triangle ABD is similar to triangle BCE as the angles CEB and ADB are right angles and the angles BCE and DBA are equal because they are alternate interior angles of parallel lines. Therefore the triangles are similar and the sides of one are proportionate to the sides of the other.

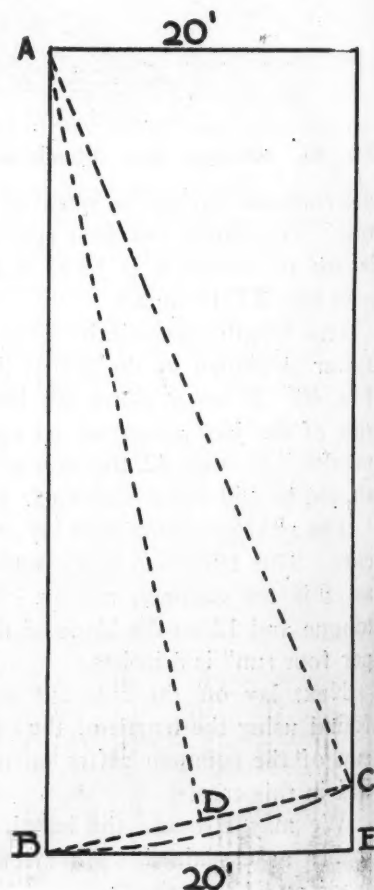
The length of $BC =$ square root of $20^2 + 1^2 = 20.025$.

Therefore $BD = 20.025 \div 2 = 10.0125$.

Then $AB : BD = BC : EC$ or $AB : 10.0125 = 20.025 : 1$.

AB is equal to $10.0125 \times 20.025 = 200.5$.

$1 = 200' 6''$, the depth of the shaft.



CE = 1 FT.

The Solution Submitted by Mr. Taylor.



This Imposing Group of Farm Buildings Was Erected by L. D. McLaughlin, a Builder of Royal Centre, Indiana, on Oakridge Farm, Owned by Glen Forgy of Royal Centre. The large barn, Mr. McLaughlin writes, is 45x150 feet with a 30x30 feet annex on each side. A picture of this building in the course of construction is shown at the bottom of the page.

A third interesting method of solving Mr. Lasker's problem is that submitted by John B. Armour, Hamilton, Ontario, Canada.

Hamilton, Ont., Can.

To the Editor:

Consider the plumb line as the radius of a circle and the height it rises when swung over to the opposite side of the shaft as the height of a segment; also imagine it free to swing the same distance in the opposite direction, as shown in the diagram.

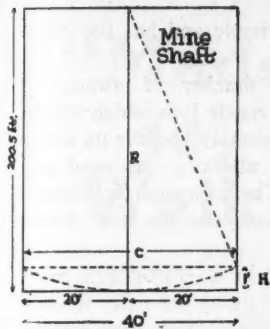


Diagram for Mr. Armour's Method of Finding Shaft Depth.

$$R = \frac{c^2 + 4h^2}{8h} = \frac{40^2 + 4 \times 1^2}{8 \times 1} = 200.5'$$

200 feet 6 inches is the depth of the shaft.

JOHN B. ARMOUR.

Other Correct Answers

Another correspondent solves the problem through the use of the steel square, missing the answer by 6 inches, which is an error of less than one-quarter of one per cent, made, as Mr. Hall explains, through inaccuracy in measurement.

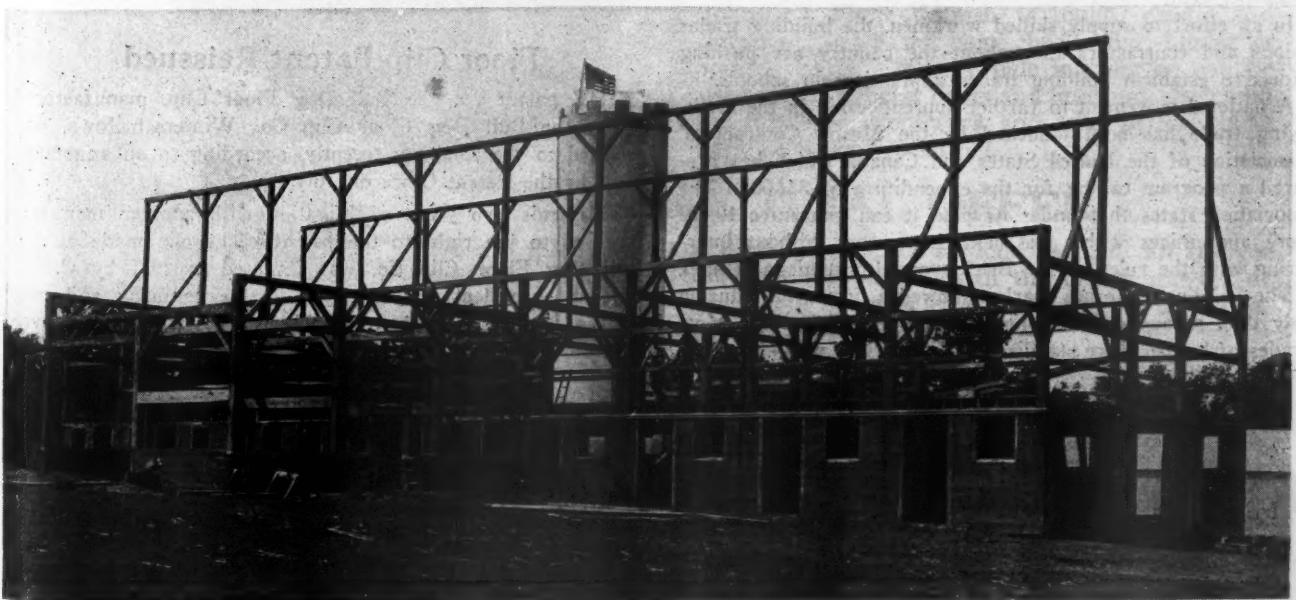
Among the contributors who solved the problem correctly were: H. W. Nichols, Unadilla, N. Y.; James Russell, Valsley, Ore.; Otto A. Haberley, Smith Center, Kan.; E. L. Bowman, Evansville, Ind.; C. H. Peters, Stillwater, Minn.; T. G. Taylor, Colorado Springs, Colo.; Larry L. Price, Dillon, Mont.; R. D. Latham, Hoxie, Kan.; Erwin J. Dye, Gloversville, N. Y.; R. E. Flora, Blackwell, Okla.; Fred W. Raubach, Gillespie, Ill.; Albert Shaw, New Bedford, Mass.; B. Rust Brown, Vanduser, Mo., and Franz Szabo, Kewanee, Ill.

Nathan Harris, with the City Planning Commission of Minneapolis, prefaces his correct solution of the problem with another method which shows a very practical mind. Mr. Harris writes:

"The practical and easiest way to solve the problem is to pull up the spring and measure it."

He also submitted a solution of the problem through the use of trigonometry, in addition to the correct triangle solution. The result of the trigonometric calculations, several of which were received, showed fractional errors due to the tables used and recognized by those using this method.

E. A. Kunze, architect of the Central Railroad of New Jersey, in addition to submitting the correct answer to the problem as it was worked out by the others, gave the solution if the plumb bob were swung diagonally across the bottom of the shaft to the opposite corner from the one to which the line was attached at the top of the shaft. Mr. Kunze finds the depth in this case as 400 feet 6 inches. We are taking his word for it.



L. D. McLaughlin, Royal Centre, Indiana, Builder, Used the Old Fashioned Mortise and Pin Frame in Erecting This Large Barn on Oakridge Farm, Owned by Glen Forgy. This building, with the others shown at the top of the page, certainly constitutes a worth while job for any builder.



The Building Outlook

BUILDING PERMITS issued and plans filed in 324 cities for July show an increase over July, 1923, of between 2 and 3 per cent, indicating that the volume of building throughout the country on the whole continued toward more normal levels, according to the monthly report issued by S. W. Straus & Co.

The only region which reported unusual activity for mid-summer was the South, where 55 cities and towns showed a gain of approximately 35 per cent. The next most active region was the Central West, where 106 cities reported a gain over last July of 5 per cent. The Eastern and Pacific Western regions showed losses of 4 and 3 per cent, respectively.

The volume of plans and permits in the 324 cities and towns was \$258,027,584 compared with \$252,245,981 last July and \$284,890,252 in June this year.

The July gain in the 25 leading cities was negligible and the loss in these centers of population from June this year was about 9 per cent.

A few large cities, however, continued to report marked building activities and gains over last July. Washington, D. C., had an increase of 143 per cent; Oakland, Calif., 72 per cent; Boston, 41 per cent; Detroit, 49 per cent, and Chicago, 18 per cent.

New York City reported a loss of 22 per cent; the first loss as compared with a corresponding previous period, shown in that city for several years. Philadelphia also showed a loss over July, 1913, of 2 per cent, and Los Angeles had a loss of 23 per cent.

In an effort to supply skilled workmen, the building trades unions and contractors throughout the country are pushing efforts to establish building trades apprenticeship schools.

A national movement to further apprenticeship in the brick-laying trade has been launched by the Mason Contractors' Association of the United States and Canada which has prepared a program calling for the expenditure of \$42,000. The association states that under its plan it can guarantee 10,000 more apprentices within the next four years without interfering with the rules of the Bricklayers' International Union.

The building materials market showed a firmer tone during July than at any time during the past three months. Most grades of lumber were stabilized at June prices although many

classes of southern pine registered material advances. While the decline in structural steel continued, it was not as pronounced as in June. Common brick was slightly lower in some Middle Atlantic cities. Other starting materials were unchanged generally, except in Atlanta, where some advances were recorded.



Build, Re-pair, Re-roof Now

BUILD, Re-pair, Re-Roof Now: This is to be the slogan of an important part of the building industry for the next three months, in the second annual drive to promote greater use and sales of building materials.

The first campaign, originated and sponsored by the Lehon Company, roofing manufacturers of Chicago, met with an enthusiastic response from building material dealers and builders in the fall of 1923, and so enthusiastic are those who co-operated in the movement over the results obtained last year that they are planning an even bigger and more successful drive for this season.

The idea back of the campaign is simple and has the effectiveness of its simplicity.

In every community there are a number of owners of property who have some building and repair jobs which should be done and which are postponed indefinitely because no active measures are taken to call to their attention the need and desirability for immediate action. The campaign is planned something along the lines of the "Save the Surface" movement.

Because it is practicable and proved its worth in 1923, many others beside the originators of the "Build, Re-pair, Re-roof Now" movement are joining it, and promoting such activity in the building field for the good of the entire industry.

Certainly no retailer of building materials and no one engaged in the building industry can afford to miss a chance to help such a movement and turn it to good account locally.

In local campaigns it is planned to keep the desirability of building and repairing constantly before the householder through the means of newspaper advertising, billboards, window displays, exhibits at fairs, mailing matter and other legitimate means. The Lehon Company is furnishing its dealers with a number of advertising helps to promote the local efforts.

The originators of the movement are to be congratulated upon developing an idea of real value to the entire building field.



Floor Clip Patent Reissued

THE patent for the Bull Dog Floor Clip, manufactured by the Bull Dog Floor Clip Co., Winterset, Iowa, was reissued to the company recently, according to an announcement by the Patent Office on July 29.

This ends two years of litigation with another manufacturer as to the right to the patent. The clip made by the Bull Dog Floor Clip Co. was invented in 1921 by C. W. Prickett, president and manager of the company and millions of the clips which are used in laying wood floors over concrete have been sold.

SUMMARY OF JULY BUILDING REPORT BY REGIONS

PREPARED BY S. W. STRAUS & CO.

No. Cities	Regions	July, 1924	July, 1923	June, 1924	Gain or Loss— July-July	Gain or Loss— July-June
87	Eastern	\$105,632,672	\$110,094,443	\$130,036,641	\$4,461,771 —4 per cent	—\$24,403,969
106	Central	88,627,034	83,902,934	100,845,659	4,724,100 +5 per cent	—12,218,625
55	Southern	24,917,301	18,391,534	19,159,975	6,525,767 +35 per cent	+5,757,326
76	Western	38,850,577	39,857,070	34,847,977	1,006,493 —3 per cent	+4,002,000
324	Total	\$258,027,584	\$252,245,981	\$284,890,252	\$5,781,003 —2 per cent	\$26,842,668

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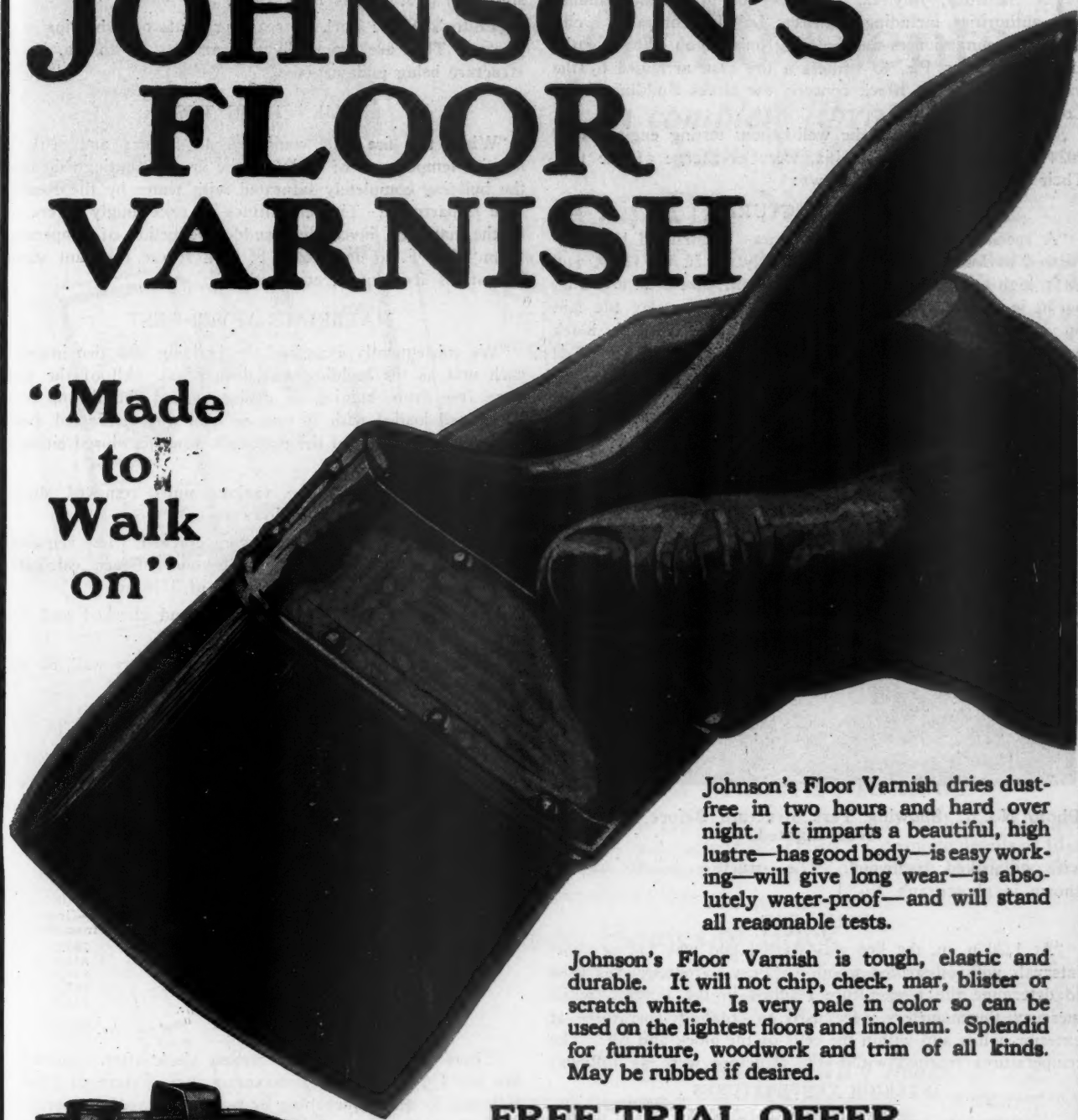
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**"Made
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Johnson's Floor Varnish dries dust-free in two hours and hard over night. It imparts a beautiful, high lustre—has good body—is easy working—will give long wear—is absolutely water-proof—and will stand all reasonable tests.

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Fire Test at Reading, Pa., Shows Worth of Straub Cinder Blocks

ON Saturday, July 12, a number of prominent building authorities, including architects, building contractors, city building commissioners and building publication editors, gathered at Reading, Pa., to witness a fire test, arranged by the local Straub Cinder Block concern, the Berks Building Block Company.

S. L. Conwell & Co., the well-known testing engineers of 2024 Arch street, Philadelphia, were in charge of the test. Their official report is as follows:

TEST STRUCTURE

"A special building for the test was constructed by experienced masons. It was approximately 20 ft. by 12 ft. and 10 ft. high and contained 637 cinder blocks, size 8 in. and 8 in. by 16 in., 704 face clay brick and 130 hollow clay tile laid up in lime mortar. One partition wall of Straub block was loaded with 10 tons of pig iron. The interior was filled



Photo No. 1. Showing Test Structure Before Test Fire Was Lighted.

with oil-soaked cordwood. The structure before test is shown in photograph No. 1.

FIRE TEST

"At 1:30 p. m. the fire was started and was fed at short intervals with oil-soaked wood. A Fery pyrometer was used to determine the temperature reached in the interior, while mercury thermometers were used to obtain temperatures at exterior points and within the cells of the block and tile. The temperatures reached within the structure were as follows:

INTERIOR TEMPERATURES		
Time		Temperature
1.45		710° F.
1.50		800° F.
1.55		1050° F.
2.00		1205° F.
2.05		1350° F.
2.10		1385° F.
2.15		1420° F.
2.20		1470° F.
2.25		1505° F.
2.30		1510° F.
2.35		1540° F.
2.40		1510° F.
2.45		1530° F.
2.50		1505° F.
2.55		1520° F.
3.00		1485° F.
3.05		1530° F.
3.10		1505° F.
3.15		1500° F.

"The temperatures reached in the cells of the hollow clay tile and cinder blocks were as follows:

CELL TEMPERATURE		
Time	Clay Tile	Cinder Block
2.00	140° F.	115° F.
2.15	183° F.	140° F.
2.30	260° F.	160° F.
2.45	413° F.	260° F.
3.00	681° F.	384° F.
3.15	704° F.	397° F.

"No passage of flame through the walls took place. There was no bulging or deflation of the walls or of the partition carrying a 10-ton load. The structure during the fire test is shown in photographs Nos. 2 and 3.

(Editor's Note: Lack of space prevents our showing these photos. They are practically the same as Photo No. 11, the structure being undamaged.)

QUENCHING TEST

"When the fire had continued 1½ hours and with an interior temperature of 1,500° F. the fire was extinguished and the building completely saturated with water by the Reading Fire Department. This constitutes an exceedingly severe test of the materials, involving a sudden reduction of temperature from 1,500° F. to under 212° F. with severe resultant strains and stress from quick contraction.

MATERIALS AFTER TEST

"We subsequently examined the building and also inspected each unit as the building was demolished. All of the walls were free from bulging or deflection and the Straub block party wall loaded with 10 tons of iron was unaffected except on the surface. All of the materials were discolored either by smoke or water.

"Our inspection of the various units removed during demolition is reported as follows:

"Of the 637 Straub block, 2 were cracked. The remaining 635 were intact and uninjured beyond surface calcination to a maximum depth in a few cases of 3/16 in.

"The clay tile were badly cracked and checked and unfit for use.

"Of 91 face brick exposed to the north party wall, 85 were cracked and unfit for use.

TESTS OF STRAUB BLOCK FROM STRUCTURE

"As a direct determination of the effect of the fire and quenching upon the strength of Straub block, 5 were taken from various places in the structure after the test, and tested in comparison with 5 block of the same age taken from stock piles. The results were as follows:

COMPRESSION TESTS

Specimen No.	Crushing strength and lbs. per sq. in.—Gross Area)	
	Blocks from Fire	Block from Stock Pile
1	792.0	783.0
2	813.0	836.0
3	774.0	840.0
4	771.0	795.0
5	800.0	751.0
	Av. 790.0	Av. 801.0

"These results show that Straub block after exposure to fire for 1½ hours with a maximum temperature of 1,540° F. followed by quick quenching by water, suffered no appreciable loss of structural strength and that they still were capable of meeting the usual minimum crushing strength requirement of 750 lbs. per sq. in.

"Upon analysis, an average sample of the block was found to contain:

(Parts by Volume)	
Cement	1.00
Cinders	6.13

SUMMARY

"In length and intensity this test approximates the conditions of a destructive dwelling house fire and their condition at the end shows cinder blocks to be strongly fire resistant and to be capable of passing through the average fire unimpaired except for surface discoloration.

"Respectfully submitted,

"E. L. CONWELL & CO.

(Signed) "E. L. CONWELL,

"Registered Professional Engineer."

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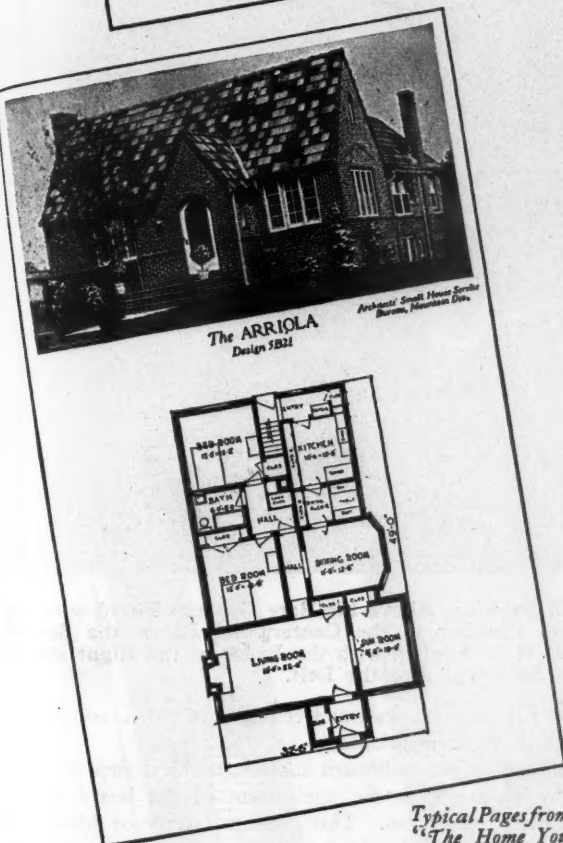
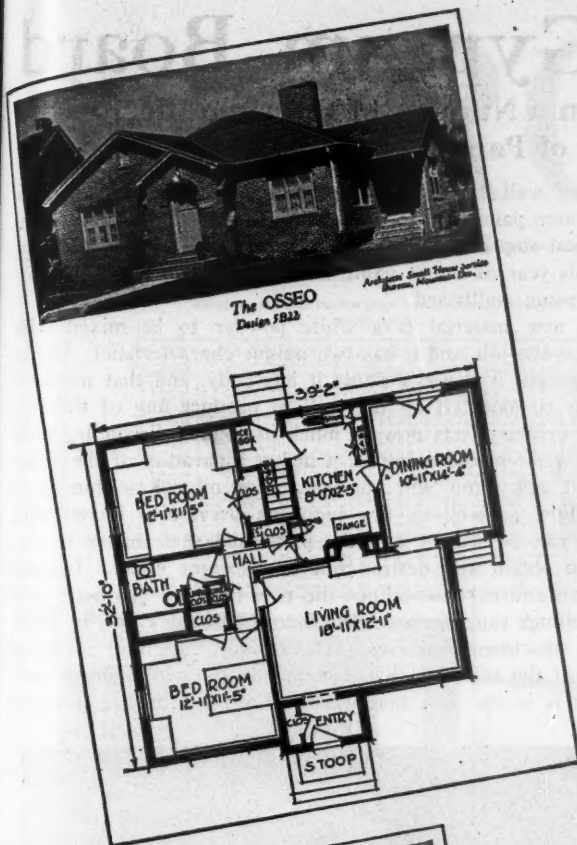
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The Ideal Brick Hollow Wall

Made of standard brick—cuts the cost one-third

Special Paint for Gypsum Board

New Material Permits Decorator to Obtain a Number of Pleasing Effects Without the Necessity of Paneling

UNCLE SAM'S need for a large-unit, economical, fire-resistant material with which to line the walls and ceilings of the cantonment buildings that were hastily built to house the citizen-army, brought near to culmination the development of wallboards. At first plaster boards which properly are fire-resistant, large-unit substitutes for wood lath, were used in the soldiers' quarters. But the manufacturer of the standard plaster board devised a special board to meet the Government's need, simplifying the method of installation by giving it a square fibre-bound edge which permitted of nailing and processing the board so that it could be sawed like lumber and producing it in floor-to-ceiling lengths.

Following the war, the product was perfected for the purposes of dwelling construction and was put on the general market. Its insulating and fire-retardant qualities, its structural strength and rigidity and the fact that being made of gypsum rock it could not warp, buckle, or shrink, made it adaptable to permanent construction.

But the evolution of wallboards could not be complete until the problem of decorating it was solved to the satisfaction of the most fastidiously artistic housewife. In the early days of

Fig. 1. The Gypsum Board Applied to the Wall.

wallboards, the limitation of their decorative possibilities, as much as any other one element, retarded their adoption as materials for permanent construction.

It often was impossible to obtain flat wall effects with them; they had to be paneled with wood strips. Now no home-owner objects to the paneling of one or two rooms, but paneling throughout is monotonous and otherwise distasteful. So overcoming the necessity for paneling represented the final step in the evolution of wallboards.

That has been accomplished, in the case of gypsum wallboard, by two developments. First, was the perfection of the square edge. This makes it possible to nail the wallboard to the studding of the house with the edges tightly fitting together, making a smooth uniform surface. Over such a surface, the seams and nailheads properly filled with the specially prepared finisher, it is possible to apply paper or other

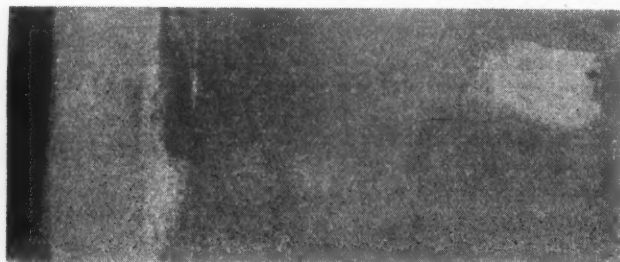


Fig. 2 Shows the Joints and Nailheads Filled with the Gypsum Board Finisher, Applied with a Putty Knife. Use of this special finisher assures a smooth finish.

prepared wall fabrics, to paint with oils, calcimine or other cold-water paints, or to work out any flat-surface treatment. The final step in the evolution is represented by the introduction this year of a new paint, manufactured by the makers of the gypsum wallboard.

The new material is a white powder to be mixed with water at the job, and it has two unique characteristics. Unlike other paints, it is not a fluid; it has body, and that makes it possible to model it on the wall to produce any of the textured surface-effects now so much in vogue. Secondly, while it is a water-mixed material, it makes a paradox of the adage that oil and water will not mix. For oil colors thinned in turpentine, as well as dry pigments previously mixed with water, can be stirred into the paint and that makes it possible to obtain any desired tint or two-tone effect. Because of these unusual possibilities the new material has been used in dwellings ranging from \$5,000 to \$30,000 in value, in clubs, hotels, apartment buildings, schools and churches. And the proof of the assertion that it completes the evolution of wallboards is in the fact that it has prompted the use of wall-



Fig. 3 Showing, Above the Bare Gypsum Board with the Size and Finisher in the Center, and Below the Special Paint as It Is Applied with the Brush at the Right and as It May Be Stippled to the Left.

board as a permanent wall and ceiling material in many such buildings as those mentioned.

In building up the wallboard surface, the first step, as illustrated by Figure 1, is the application of the board to the framework of the room. This consists merely of fitting the square-bound edges tightly together and nailing the sheets with ordinary 3-penny nails.

Figure 2 represents the joints and nailheads filled with the gypsum board finisher, applied with a decorator's scraping knife. Putty and ordinary fillers can be used only with indifferent results; the chances of defects in the finished job are minimized by the use of the proper finisher.

Next, after the finisher has thoroughly dried, the entire surface must be sized. A regular size is supplied by the makers of the gypsum board, but any standard varnish size may be used.

BRASS ROME COPPER

WEIGHT OF SEAMLESS DRAWN BRASS TUBE. OUTSIDE DIAMETER
STUB GAUGE

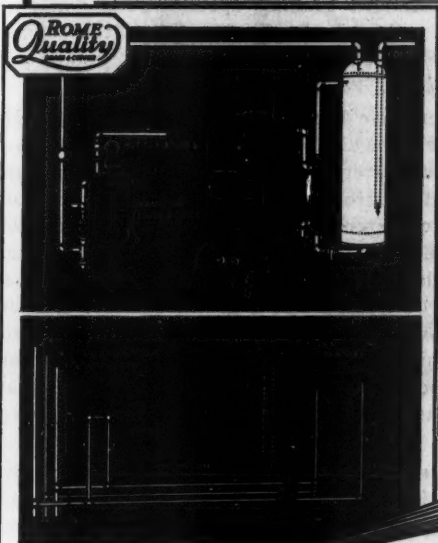
Weight of Tube	1/8"	3/16"	1/4"	5/16"	3/8"	7/16"	1/2"	5/8"	3/4"	7/8"	1"	1 1/8"	1 1/4"	1 1/2"	1 3/4"	2"	2 1/2"	3"	3 1/2"	4"	4 1/2"	5"	5 1/2"	6"	6 1/2"	7"	7 1/2"	8"	8 1/2"	9"	9 1/2"	10"
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100	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
100	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
100	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
100	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
100	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
100	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000														

WEIGHT OF SEAMLESS DRAWN BRASS TUBE. OUTSIDE DIAMETER
STUB GAUGE

		— Diameter of end hole		1/8"	3/16"	1/4"	5/16"	3/8"	7/16"	1/2"	5/8"	3/4"	7/8"	1"	1 1/8"	1 1/4"	1 1/2"	1 3/4"	2"	2 1/2"	3"	3 1/2"	4"	4 1/2"	5"	5 1/2"	6"	6 1/2"	7"	7 1/2"	8"	8 1/2"	9"	9 1/2"	10"	
Weight lb.	Inches	100	200	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
		300	400	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
100	1.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
200	1.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
300	1.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
400	1.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
500	1.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
600	1.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
700	1.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
800	1.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
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1000	1.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
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1200	1.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1300	1.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
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1500	1.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1600	1.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
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2300	1.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2400	1.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2500	1.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2600	1.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2700	1.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2800	1.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2900	1.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
3000	1.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
3100	1.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000													

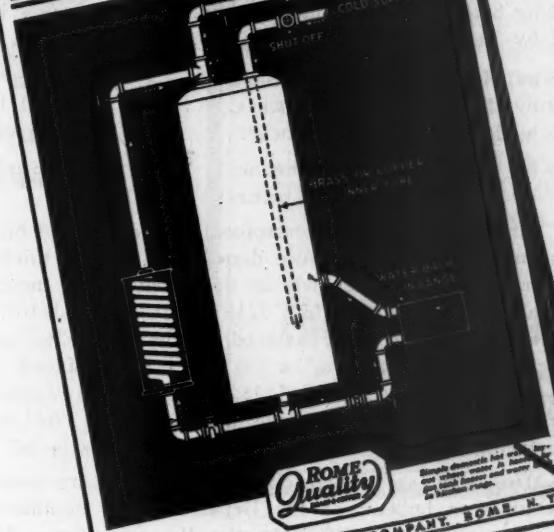
To determine the weight of brass tubing, see page 16.
Copper tube weights about 2 per cent more than brass.
NOTE: The figures in heavy line type in all cases represent ROME Measurements.

COMPLETE THE JOB AT THE STAY



BRASS ROME COPPER

Bulletin No. 1



ROME BRASS AND COPPER COMPANY, ROME, N. Y.

A helpful book you can use every day

This new book, showing approved layouts of standard practice in plumbing installations, illustrates the use of brass and copper tubing, and copper boilers. The book is printed throughout in three colors, black, brass, and copper.

You will find an illustrated story of the manufacture of Rome Quality Seamless Brass and Copper Tubing that is interesting.

Included also are a number of charts and tables that will find a ready use in your every day work. A coupon is inserted for your convenience. Use it today—your copy of this brass pipe plumbing bulletin will be forwarded promptly—FREE.

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Brass Pipe Division,
Rome Brass & Copper Co.,
Rome, New York.
Please send me a copy of
your NEW BRASS PIPE
BULLETIN.

Name:

Address:

City and State:

While the size is drying, the paint may be mixed with water to the consistency of a thick paste and the tinting colors may be stirred in. These tints, as has been said, may be either oil colors thinned in turpentine or dry pigments dissolved in water. A pound of the paint will cover about a yard and a half of surface to the same thickness given by three coats of ordinary wall paint; and the amount to be mixed in each batch may be gauged by the rapidity with which it can be

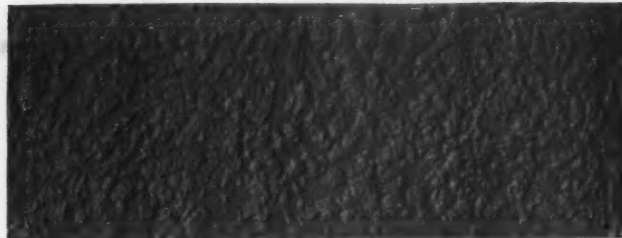
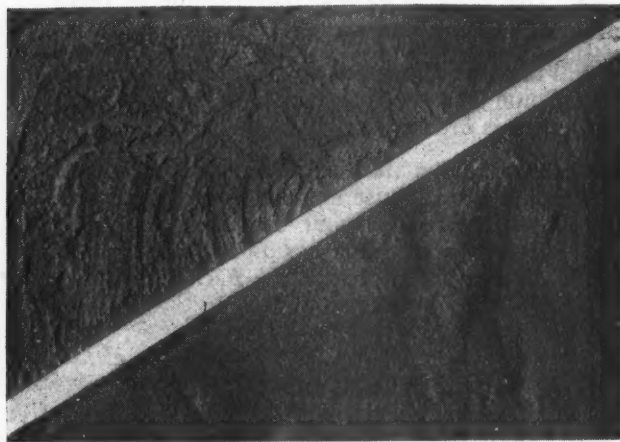


Fig. 4. A Completed One Coat, Single Tone Finish.

applied—usually it is best to mix enough to cover one entire wall of the room. Thus mixed it is ready to be applied with a large wall brush, as is shown at the right side of Fig. 3. As soon as this coat becomes "tacky," it is ready for stippling. The left portion of Figure 3 shows this done by an ordinary stippling brush, to a medium-stipple finish resembling a sand float plaster finish.

After the stippled surface is entirely dry, it may be lightly sandpapered to remove the higher spots and produce a finer finish. Figure 4 illustrates the completed one-coat, single-tone, medium-textured finish.

Figures 5 and 6 show two of the more elaborate finishes possible with the new material. The former represents a Spanish Renaissance finish similar to that in the lobby and other public rooms of the Drake Hotel, Chicago. To obtain this, the first coat after being brushed on and allowed to dry partially, is worked into the desired texture with the palms of the hands. The two-tone effect is obtained by applying the glaze as described and then wiping it with a pad of soft cloth. This removes the glaze from the high spots and allows it to accumulate in the depressions, giving a contrast of light and dark and the color-variation desired.



The Scroll Effect Shown in the Upper Triangle, Fig. 6, Is Obtained by Working the Paint with the Fingers. The effect in Fig. 5, below is obtained by working with the palms of the hands.

The scroll-effect in Fig. 6 is obtained by working the paint into scrolls with the fingers. Caenstone, Travertine marble, Italian Renaissance and other varieties of finish are obtainable. While the material was evolved primarily to solve the decorative problem presented by the use of gypsum wallboard for permanent construction, it also is applicable to plaster, wood and other surfaces.

New Lumber Standards Now Effective

BUILDERS all over the United States and the lumber industry generally are to be congratulated upon the new lumber standards which went into effect July 1st, this year.

There has been inconvenience and loss in the past, due to confusion and lack of uniform standards. This condition threatened to become worse because of competitive conditions. For instance, the dressing allowance varied in different mill territories. The builder has long wanted more uniform conditions as to size and grade, and dealers, particularly, will welcome this solution to their present difficulties. "American Lumber Standard" and the grade will be branded on all lumber shipped from mills accepting the new standards.

Herbert E. Hoover, as secretary of the Department of Commerce, gets most of the credit for this achievement, although progress has been made in this direction since 1919, when the American Lumber Congress took up the idea of simplified standard practice and adopted a constructive program. The Forest Products Laboratory of the Department of Agriculture has been of great assistance in working out standard grading specifications and their recommendations will undoubtedly be of great assistance to the committee which will work out the details and which has until May, 1925, to report.

Two conferences have been held at Washington on Mr. Hoover's initiative, at which all groups and associations of the lumber industry were represented, as well as some railway and industrial groups, besides the Government officials. The first conference was held in December, 1923, and the second in April, 1924. As a result of these conferences, standards were adopted as to methods of measurement, standard sizes, surfacing allowances, grading, grade marking, bundling, mouldings, shingles, tally cards, shipping provisions, inspection, and other items. Practically the entire membership of the various associations have signed an acceptance pledge putting the new standards in effect.

At the conferences the biggest controversy arose over the recommendation of the Forest Products Laboratory that the most desirable thickness of surfaced one-inch stuff would be 26/32 of an inch. There was almost a deadlock over this proposal, finally solved by the suggestion of Secretary Hoover to make 25/32 inch "standard" and 26/32 inch "extra standard," which was adopted.

The odd lengths made standard are as follows:

2 by 4 inches, 6 and 8 inches.....	9 and 11 feet
2 by 8 inches and 10 inches.....	13 feet
2 by 10 inches	15 feet
8 by 8 inches, 10 by 10 inches,	} 11 and 13 feet
10 by 12 inches, 14 by 14 inches,	
16 by 16 inches, 18 by 18 inches }	
6 by 16 inches, 6 by 18 inches }	} 15 and 17 feet
8 by 16 inches, 8 by 18 inches }	

Yard lumber will, as heretofore, be ordered and billed on the nominal board measure dimensions, except thicknesses under one inch, which will be described by the actual surface thickness, viz., 5/16", 7/16", 9/16" and 11/16". The standard size of 2 x 4's, surfaced, will be 1 5/8" x 3 5/8"; 2 x 6's, surfaced, will come 1 5/8" x 5 5/8"; 2 x 8's, surfaced, 1 5/8" x 7 1/2", and 2 x 10's, surfaced, 1 5/8" x 9 1/2". The "extra standard" thickness of the 2-inch will be 1 3/4". The standard surfacing allowance on the other thicknesses is 3/8".

Many other sizes and classes of lumber are covered in detail by a bulletin of the Department of Commerce just issued entitled "Simplified Practice Recommendation No. 16." This bulletin may be obtained by writing to Wm. A. Durgin, Chief, Division of Simplified Practice, Washington, D. C.

"It Spreads

So Easy"



**Four
Brands**

Many a contractor is unjustly condemned for faulty work.

You know, and so do we, that poor work is more often the result of faulty material than careless workmanship.

To insure you uniform material and the same dependable result—ALWAYS—we maintain a completely equipped laboratory in charge of an expert chemical engineer whose sole duty is the constant guarding of the uniform purity of



A quarry of 99½% pure limestone, modern methods of hydration, and continued laboratory tests of our product explain its uniformity.

Its superior results are due to its uniformity, plus an unusual chemical content and the peculiar natural composition of the limestone rock from which it is burned.

That's why Ohio Hydrate Finishing Limes are exceedingly "fat" or plastic, easy-working, free-spreading; quickly troweled to a smooth, hard, snow-white wall—free from chipping, checking and blistering.

For best results more easily attained, insist on getting one of our four Ohio Hydrate brands.

At considerable expense, we have prepared an interesting booklet on Hydrated Lime—its use and abuse. This booklet, called "The Tale of the Clam," will be mailed free to any contractor upon request. Write for your copy today.

The Ohio Hydrate & Supply Company

Woodville, Ohio

"The Lime Center of the World"

**Four
Brands**



**One
Quality**

**One
Result**



MOTOR TRUCKS and TRAILERS



Motor Truck Maintenance

Economy in Motor Truck Operation Cannot Be Attained Without Care and Attention to the Methods of Drivers and Mechanics

By F. A. WHITTEN

EDITOR'S NOTE: Mr. Whitten is chief engineer of one of the larger manufacturers of motor trucks and speaks with the authority of one who has watched the results of careless and careful handling on thousands of trucks. His short, pithy bits of advice will be found valuable by the owner of a single truck and the operator of a large fleet. Other contributions by Mr. Whitten will appear in a later issue.

TREATMENT given a truck during the first 30 days of its career often decides whether the black ink of the profit column or the red ink of loss will be used when a balance is struck by the truck's earnings. So the first 30 days are the hardest, from a truck's viewpoint.

Be sure that the radiator is full and is kept full of water; that good oil is up to the "full" mark in the oil reservoir and that it is changed in accordance with manufacturers' instructions. Register the storage battery at once at the battery service station so that the 90-day free service can be had, and have the battery inspected at least once a week.

With most make trucks it is advisable to drive them not faster than 15 miles an hour the first 500 miles so that the bearings will be worn in properly.

Under no circumstances disturb the governor and its adjustments. This is set at a speed that means safety both for the truck and traffic. A faster speed invites mechanical trouble and road accidents.

After a truck has been run a few days, look it over closely. See that brakes have a full bearing surface on the drums, as new brakes often have high spots which wear down and leave the brakes loose. See that radiator hose connections are tight and that all nuts are well fastened.

The truck owner who would get the ultimate of service from his purchase, and who has civic regard for the condition of roads will not overload his truck. An overload may mean a slight increase in a day's profit, but it is likely to result in big expense bills through the premature wearing of parts. It also is a big factor in injuring road surfaces. The wisest course is to obey the rated load rule and the state laws governing loads on highways.

Keep the working parts of the truck clean and well lubricated if the maximum results are desired. A dirty engine has a bad moral effect on the driver, and indicates lack of care. From a purely mechanical standpoint it aids dirt and grit to work into moving parts of the engine, covers small parts such as cotter pins so thoroughly that it is not easily noticed if they fall off, and generally proves detrimental. Furthermore a dirty engine collects oil, creating a fire hazard. A good driver, interested in his truck, is known by the lack of dirt found under the hood.

Virtually every truck owner would willingly pay good money for a device that would guarantee to reduce his gasoline and oil bills a substantial amount, in some cases as much as 50 per cent. A little matter of daily routine, taking but a minute or so a day, will accomplish the same results at no cost.

One-half of the secret of reducing gasoline and oil bills is to each day check the miles traveled by the truck, fill up the gasoline tank, recording the amount put in it, and then figuring the miles per gallon obtained. The second half is still easier—it consists of having some one interested in the operating cost of the truck to look at this daily record.

A truck in good condition will operate under normal

Find Out What Builders Say About *International* Motor Trucks

International Features:

Life Guarantee on Crankshaft and Main Ball Bearings:

We guarantee that the crankshaft in the heavy-duty International will not break, and the main ball bearings will not break, wear out or burn out during the life of the truck. No other truck carries a guarantee like this.

Perfected Steering Gear:

A complete departure from present-day truck steering design. Steering post set at 30-degree angle. Permits natural and comfortable driving without sacrifice of loading space.

Removable Cylinders:

International design eliminates re-boring cylinders or replacing complete cylinder blocks. International was first to use this type of construction.

Rear Auxiliary Springs, Exclusively International:

These springs, inoperative under light loads, come into action when needed. Assure correct spring flexibility under varying loads.

Free Inspection Service:

Every International owner is assured free inspection service at regular intervals for the life of his trucks. This valuable working service, backed by more than 100 Company branches and their service stations, is unique in the automotive industry.

THE building business has joined hands with International haulage in hundreds of localities.

For years the two have worked together with complete satisfaction to owners, their drivers, and their customers. The good reputation of International trucks as to sturdiness, speed and flexibility, powerful attractive appearance, lasting after-sale service rendered, etc., is vouched for in the industry. Scores of single trucks and fleets are going to work for new owners and veteran single trucks are growing into fleets.

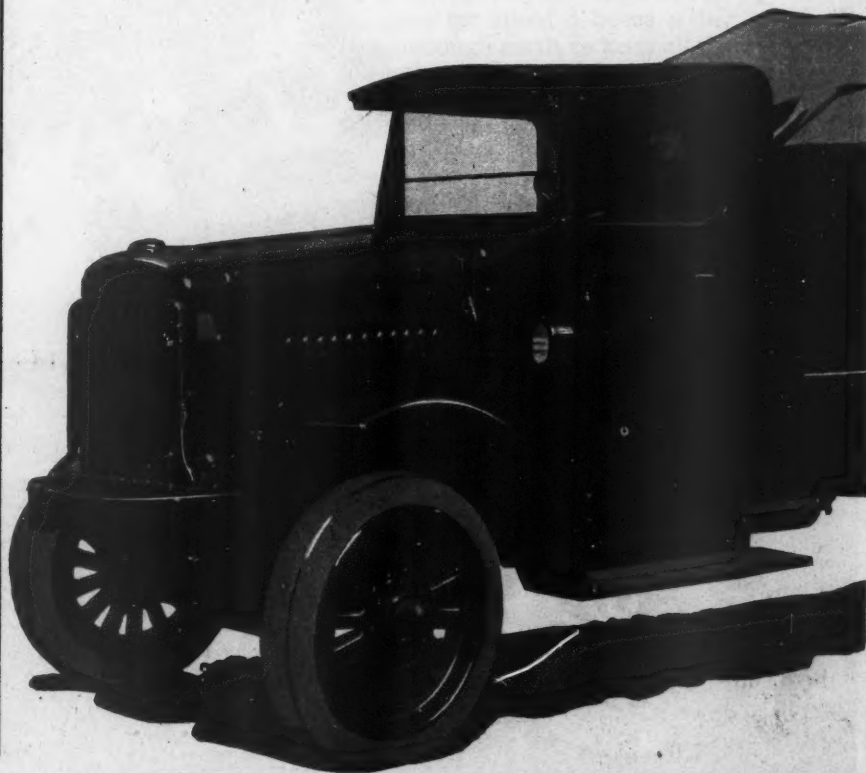
International Model 63, illustrated, is a most efficient unit for heavy hauling. The heavy-duty models are built in 3,000, 4,000, 6,000 and 10,000 pounds, maximum capacities, with bodies to meet every requirement. The International Speed Truck, built for loads up to 2,000 pounds, is a popular favorite for fast, light hauling. Upon request, we will gladly supply you with names of International owners in the building business, and the address of the nearest showroom where the full line of new models is on display.

International Harvester Company

of America
(Incorporated)

606 So. Michigan Ave.

Chicago, Ill.



loads and over average roads, at, say, 10 miles to the gallon of gas. This will be shown on the daily record. But a constant inspection of this record will disclose that gradually or perhaps suddenly only five or six miles are obtained for each gallon of gas. The record proves a barometer that gives warning that something is wrong and that an inspection is required at once.

Sometimes dragging brakes may be responsible; again it may be that the carburetor requires readjustment, or tires may be worn so badly that they no longer are economically useful. Whatever the fault is attention is called to it, the trouble located and rectified, and the gasoline consumption reduced materially.

If this daily check is not made and watched, the trouble goes unnoticed until sometime later when the unusually large operating costs are questioned or there is a general overhauling of the truck.

In practically all cases where too much gas is being used there is a corresponding wastage of oil. When the mixture is too rich the oil is being diluted and its lubricating value lost. Where brakes drag, more power than should be required is used with the extra consumption of oil.

Keeping gasoline mileage records, and watching them, will save a truck owner a substantial amount during the year, and also will be of value to him in getting a true picture of what his trucks are costing him to operate. It is particularly valuable to owners of fleets of trucks as it shows what make trucks are the most economical over a period of service.

Dirt and carelessness are the greatest enemies of a truck engine. It will react to cleanliness and care with almost human instinct. Therefore the truck owner who would get the best results from his engine will supply the truck with a good driver and see that the power plant is kept as clean as a hound's tooth. Any apparent saving in time or wages by hiring a poor, careless driver is highly expensive in the long run.

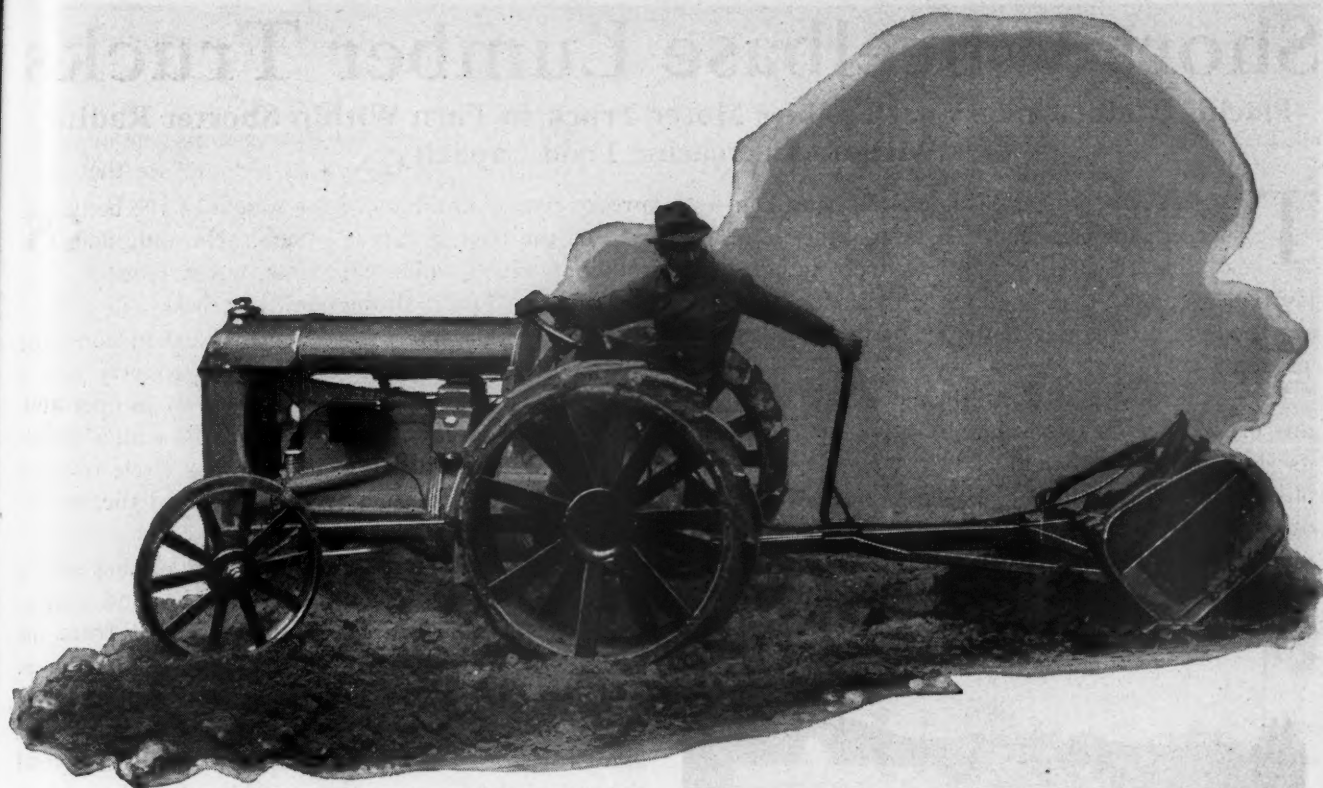
Whenever anything is wrong with an engine, the power plant will make it known in an unmistakable manner. Its audible noises are its method of making known that all is not well. Some of these noises are readily recognizable and the average driver knows at once what the difficulty is and, frequently, how to cure it. If he cannot locate the trouble, take the engine to a "doctor" at once. Instant attention likely will save a much larger repair bill and the expense of a lengthy layup of the truck.

Most engine ills are caused by dirt and improper lubrication. Good oil should be purchased from a reliable concern and used regularly. If the engine is kept clean any leak in the lubricating system can be detected at once. This is but one of the many reasons why a truck engine should be kept scrupulously clean.

In many localities in this country trouble is experienced by truck engines heating after they have been in use some time. This is due to alkaline water used in the radiator which forms scale and prevents full circulation of water. It can be prevented by using boiled or soft water in the cooling system.



The Advantages of a Clean Truck Are Recognized by E. C. Graff, a Contractor of Oakland, Calif.



Fordson Tractors Save \$1100 on 12¹/₂ Acre Grading Job

Make Hilly Plot Ready For Residence Site in Short Time

Fordson Tractors—new to the college students that operated them; new to the contractors, Meredith Bros. Co., Milwaukee—graded 12¹/₂ acres of hilly ground at Bay View, suburb of Milwaukee at a saving of \$1104 over what horses would have cost on the same job.

A description of the condition of the ground and the success with which Fordson Tractors were used is the best evidence of their ability to stand up and deliver satisfactory service under all conditions.

"The plot was hilly and in some places the land had to be cut down more than 6 feet. In one spot the land was so much lower than the road level that a pond had formed on which the boys skated in winter. The earth removed by grading was

used to fill in the low places so none of it was removed from the plot.

"The ground was loosened up by plowing before the grading began. One tractor operating a plow for about 3 hours a day could plow up enough earth to keep all the tractors busy the rest of the day grading. Pulling a plow a Fordson would plow up approximately 80 yards per hour. With a grader it averaged 51 cu. yds. moved per day over an average haul one way of about 300 feet. Preparatory to plowing, 38 apple trees had to be pulled up. The Fordsons did this easily.

"The cost of moving the dirt was 25.2 cents per cubic yard. Our experience is that it would have cost fully 30 cents per cubic yard to do the job with teams. Therefore, the saving by using Fordsons was 4.8 cents per cubic yard."

Any Authorized Ford dealer has facts and figures that will show you how you can profitably Fordize your business

Fordson Tractor \$495 F. O. B. Detroit

Ford

CARS · TRUCKS · TRACTORS

Short Wheelbase Lumber Trucks

Placing Motor Under Seat Enables Motor Truck to Turn Within Shorter Radius Without Decreasing Load Capacity

TO SAY that longer loads can be hauled in less space seems contrary to an established physical law, but it is, nevertheless, a true statement of fact when applied to a new motor truck model which has been put on the market by one of the largest truck makers within the past year.

Ever since the beginning of the motor truck industry, this make of motor truck has been widely known for its short wheelbase handiness which has been accomplished by locating the engine under the seat instead of out in front. The saving in time and space resulting from this design have caused the opinion to grow up in the minds of some lumber dealers that the truck

a more even distribution of the weight of the body and load on the front and rear wheels. Not only does this condition save gasoline and tires, but it reduces wear on mechanical parts throughout the truck.

These trucks have caused a great deal of comment among lumber dealers throughout the country and a large number of them have already been in operation for several months. The 2 to 3 ton model with a wheelbase of only 162 inches and a turning circle of only 55 feet, has a dimension from the rear of the seat to the end of the frame of 179½ inches.

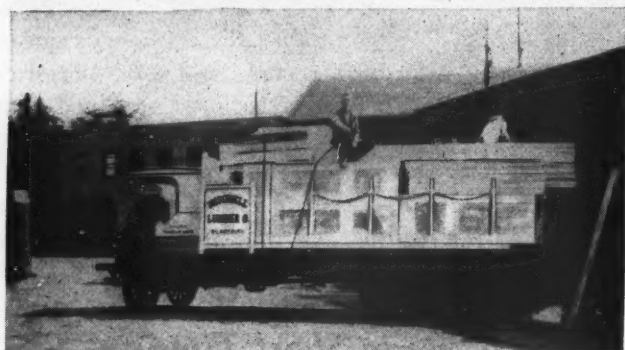
The 4 to 6 ton model shows a corresponding saving in space. With a wheelbase of 192 inches and a turning circle of only 63 feet, its measurement from the back of the seat to the end of the frame is 214 inches.

In figuring the maximum lengths which may be hauled on these trucks, lumber dealers can safely allow for at least as much extension of the load beyond the end of the frame as they would ordinarily, and, in many cases, more, without affecting the balance of the truck or the load.

These trucks have an established performance record in the lumber industry and their use by progressive lumber dealers will probably increase very rapidly. THE AMERICAN BUILDER has further information on them and will be glad to send it to any of its readers upon request.



WATCH for the first cold snap which will endanger the cooling system of your trucks. Hundreds of motor vehicles are laid up each year through the freezing of radiators and the cracking of water jackets.

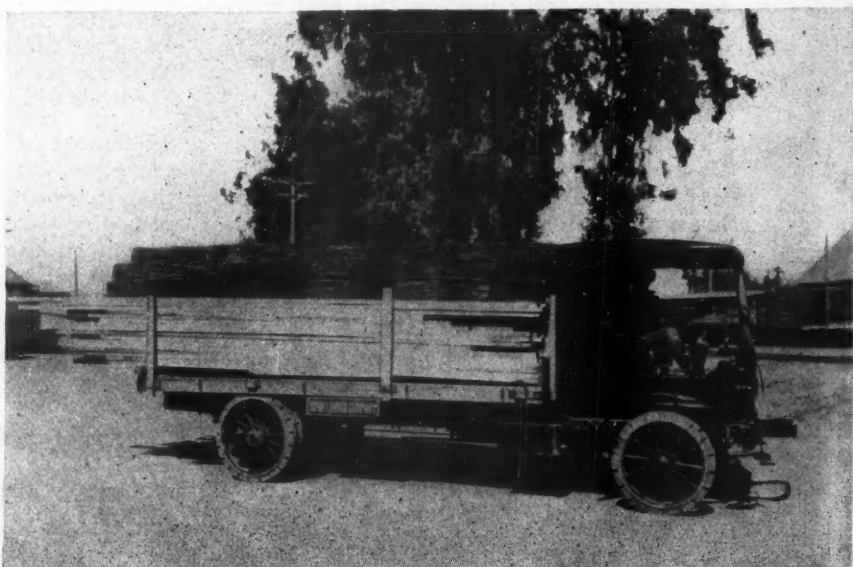


The Short Turning Radius of This Truck Is a Convenience in the Railway Yards Where the Vehicles of Building Material Dealers Are Often Required to Work.

is not adaptable to the long loads that have to be hauled in the lumber business.

As a matter of fact, this opinion in reality, is a fallacy, for although the short wheelbase design of this motor truck does actually save space, it does so without sacrificing the space for pay load.

The new models with extra long wheelbase should, however, be of special interest to lumber dealers, inasmuch as they retain the fundamental advantages of truck design and, at the same time, provide for exceptional load lengths. These models which are made in both 3-ton and 6-ton capacities make available to lumber dealers the economies resulting from short wheelbase design. Not only can longer lengths of lumber be hauled on a motor truck having less overall length, but also the proportionately shorter wheelbase length often makes it possible to deliver the load exactly where it is needed, frequently in places that might not be accessible to a longer wheelbase truck. In addition, this design results in



The Healthy Load of Lumber and Shingles Placed on this Truck Would Seem to Prove that the Short Turning Ability Had Been Attained Without Loss of Load Carrying Capacity. Notice that the load extends far beyond the rear axle.



Put It
Up to a
GMC!

PUT it up to a General Motors Truck to save you some real money on whatever hauling you do yourself.

Study the GMC costs in comparison with whatever other trucks you operate. Once you get a line on the extreme thrift of a GMC—let anyone try to sell you something else.

GMC first cost is lower than other trucks of competitive quality. There is no extra profit arbitrarily added into the price to be passed out in excessive "trade in" allowances.

Operating cost is lower. GMC design gets both speed and tremendous pulling power out of an engine of economical size—one very easy on gasoline and oil.

Every GMC part is designed with extra strength. GMC sturdiness keeps it out of trouble and repair shops—cuts upkeep time and expense.

Put low cost hauling square up to a GMC. Your profit sheet will show you the wisdom of it. More reasons why in the GMC catalog. Ask for a copy.

GENERAL MOTORS TRUCK COMPANY
Division of General Motors Corporation
PONTIAC, MICHIGAN

**General Motors
Trucks**



CLIP AND MAIL

GENERAL MOTORS TRUCK CO.,
Dept. 9, Pontiac, Mich.

Send me the GMC Catalog.

Name _____

Business _____

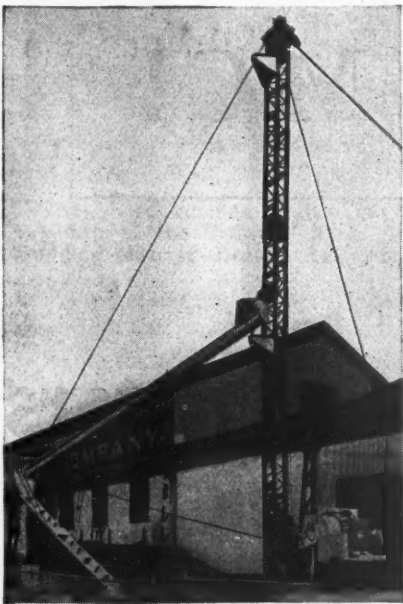
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A New Concrete Chute

A NEW "straight chute" has been recently added to the line of concrete machinery available to the contractor. It is built in two sizes having bucket capacities of 7 and 14 cu. ft. of wet mixed concrete. The smaller bucket can be used on either a steel or wooden mast, the larger on steel mast only. The wooden mast is built by the user. The steel mast is furnished by the manufacturer in 15-ft. sections up to a height of 135 ft. and comes completely equipped with 12-inch top and bottom sheaves for hoisting line and swinging chute.



The Steel Mast and Straight Chute Equipment Shown Will Chute All of the Concrete in an 80x80 Foot Structure Directly Into Place.

80-ft. by 80-ft. structure and chute all of the concrete directly into place. Supported swivel head chuting can be added to increase range of operation as needed. The second type is the continuous line plant which has the end of the first chute from the mast carrier by either a tripod or gin pole, or by a block and fall from a cable run over the top of the mast. Can be used with either steel or wooden mast. The third type—the bin plant—is used on jobs where it is desired to wheel the concrete. Can be used on the same mast as a continuous line plant.

The operation of this equipment is simplicity itself. The short swinging chute between bucket and swivel head chute (or bin) is pushed out of the way of the bucket as it goes up and drops back under the gate by its own weight. Concrete flows in a straight line from bucket to bin or chute.

Openings every 7½ ft. on the mast take care of various elevations. Erection and dismantling are fast and easy.

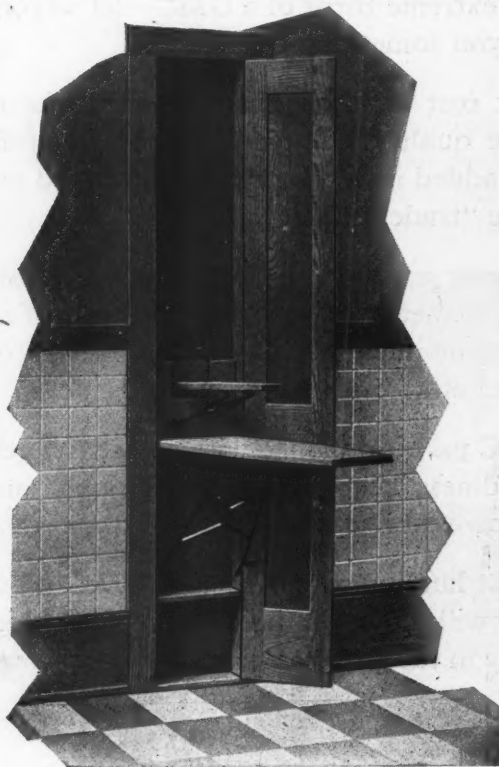
The whole output is one that economically solves the question of elevating concrete on small jobs, either of the chute distribution or wheeling type.



For the Real Head of the House

WITH the increasing realization of the desirability of building homes with the equipment as complete as possible to effect a substantial saving in the cost of furniture and the desirability of space saving devices, a number of articles have been offered. But none of these has been more deservedly popular than the built-in ironing board.

But the time has passed when any ironing board which folds up against the wall is acceptable. Remembering the days when the ironing board has been perched precariously with one end on the sink and the other on a chair of indeterminate height, the housewife demands that the board be rigid and that the cabinet which contains it be unobtrusive and made so that it fits in well with the rest of the woodwork of the room.



Convenient Carton in Which These Ironing Boards Are Shipped and Sold.

Homes Which Appeal to the Housewife Are Homes Which Sell, and Nothing Is More Important Than a Convenient and Sturdily Built-in Ironing Board. The makers of this equipment ship it in a special case to insure its delivery on the job in good condition.

Easy, one-man job. Raising lever fits timber. Fulcrum rests on ledge of steel shore head. Upward movement raises timber. Gripping dogs hold it wherever desired. Smooth, positive, even elevation. Lowering just as easy.



Shore weight 33½ lbs. Low transportation cost. Nothing to break.

O.D.G.

Adjustable Combination Square Shore

Contractors and builders: We are now ready to supply this remarkable new Shore in any quantity. The O. D. G. Steel Square Shore marks a great advance in simplicity—economy—efficiency. Two steel channels 5 feet high, riveted together with solid steel foot plate, steel cross ties, and steel head plates form a strong container within which 4x4's or 3½x3½ inch timbers are placed, adjustable as desired. Four ft. range. Eight ft. timber adjusts to 12 ft.; 12 ft. to 16 ft., etc., up to 24 ft. Steel gripping dogs insure positive hold. Supports 6 tons or more. Cannot creep, slip or fall.

Uses Your Own Timbers Old or New

Uses shoring timber you now have, old or new—saves ⅓ quantity of new timber—utilizes timber otherwise discarded. Two 2x4's can be spiked together.

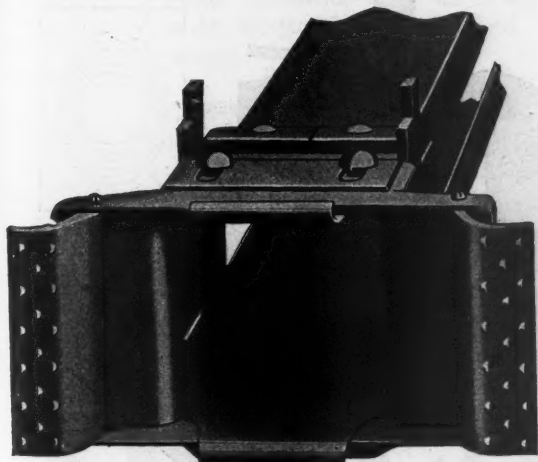
Easily operated by unskilled labor. Setting up, adjusting, taking down, resetting a one-man job of few moments. No wedges, no loose parts, no guess work in grading, no expensive "scabbing" of timbers. Open channels permit nailing of bracing top to bottom.

Can be used as jack for retaining walls, trenches, lining up forms, timbers, scaffolding, ceilings, beams, slabs, floors, wrecking operations, every shore use.

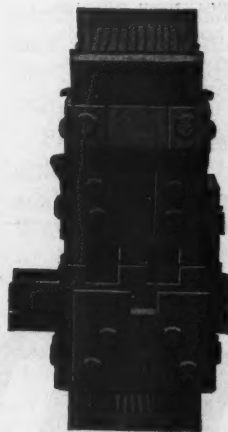
Send for catalog. Ask for prices. Lowest priced Steel Shore made. Catalog also illustrates and describes O. D. G. Adjustable Round and Square Column Clamps, Round All-Metal Shores for every purpose—A full line.

The O. D. G. Co.

Sales Dept.. Owensboro Ditcher & Grader Co., Inc.
OWENSBORO, KY.



Holding Dogs. Heavy curved plates pivoted, braced in shore head. Plates have strong teeth that permit upward movement of timber, but bite in so that there can be no sinking until dogs are released.



Two Release Latches slide backward and forward. When Shore is set Release Latches are securely locked by Safety Locking Plate. For release, the Latches are driven back and slots close up. Shore head with timber sinks ¼-inch.



When Locking Plate is slid down into place Release Latches are held in positive security. No hammer blow or other accident can release them. The plate must be raised before Release Latches can be moved.

The solidity of the ironing board shown in the accompanying illustration is assured by the folding metal braces. A feature which the practical home worker will appreciate is the smaller ironing board, which may be folded out of the way when the larger one is in use.

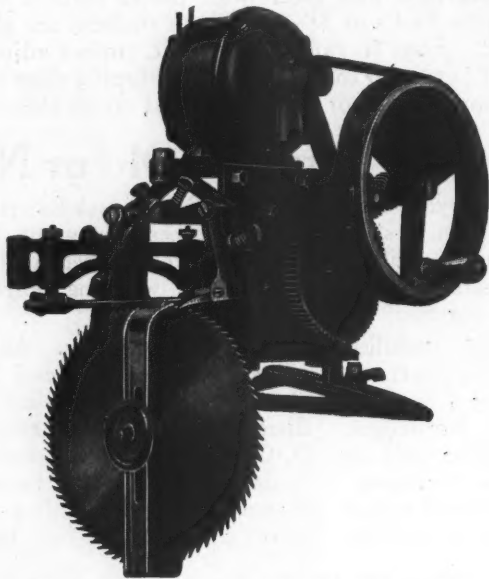
Builders will find the fixture convenient to build in since it is built to set between 2x4 inch studs, set on 16 inch centers. The height of the door is 6 feet 8 inches to line up with other doors in the room.

To insure that the cabinet and ironing board will arrive on the job in the perfect condition in which they are sent from the factory, the makers pack the equipment in corrugated board containers, eliminating dust, finger marks and bruises, and making easy the building material dealer's task of handling the equipment.



To Complete the Shop Equipment

IT IS rare indeed to find a shop of a modern builder which is not equipped to take advantage of power machines, since the economy of machine work over hand work, where it is practicable is universally recognized. But while it is usual to find the most modern equipment of power saws in such shops, in too many of them the care



Power Filing for Power Saws Is the Order of the Day in the Woodworking Shops of Modern Builders. The machine shown will file automatically band, circular and hand saws.

of the saws is still a job which is done by hand, requiring the slow and careful attention of a skilled workman who is worth, and draws, a high rate of pay for the hours he spends in keeping the saws in condition for the most efficient work.

Now there is offered to progressive woodworking establishments a power equipment which with a minimum of manual effort and time will put the saw edges in shape with mechanical precision.

The device shown in the illustration will care for circular saws, hand saws and the band saw equipment found in the shop of the contractor and builder and will do the work with mechanical precision. It will file circular saws to any desired bevel or pitch. It is equipped with a one-quarter horsepower motor.

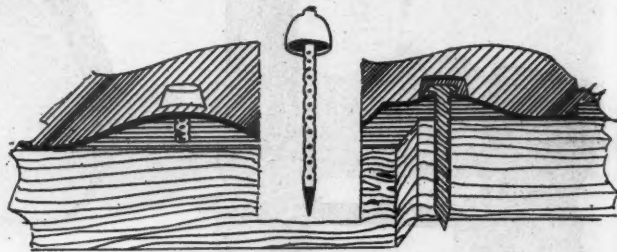


Nails Protect Against Rust

JUST as no chain is stronger than its weakest link, so no roof is better than that part of it which is likely first to spring a leak. And the weak point of roofs made of galvanized material has been that the nails used to secure the roofing to the roof would chip away the galvanizing where

they were driven through the metal and leave a space exposed to the attack of rust. And often rust would eat away sections around the nail holes while the body of the roof was perfectly sound and waterproof.

To overcome this weakness in the construction of metal



Real Protection for the Metal Roof Is Offered by Nails With a Head of Lead. The head, as the nail is driven to place, forms a protective cap to keep rust from attacking the hole made by the nail, conforming to the surface against which it is driven.

roofs of the corrugated type, a nail has been brought out which will protect the metal around the nail hole from the attacks of rust.

This is accomplished by a lead head on the nail, as shown in the drawing. The lead headed nails are made from No. 10 gauge wire, and from 1½" to 12" in length, although the standard length is 1¾".

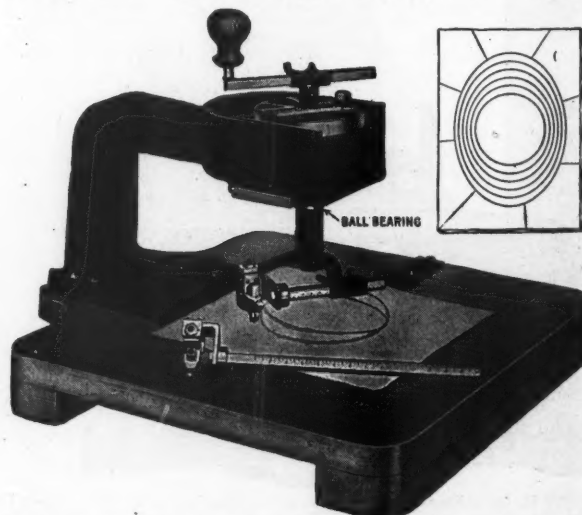
The head of the nail is of conical shape as shown in the drawing inset in the roof. As it is driven through the metal the shape of the head changes, flattened by the hammer and as it is driven against the metal roofing, the base of the head assumes the shape of the portion of the roof which it is driven against, conforming to the surface of the roof and forming a protective covering about the nail hole. The lead acts as a cushion so that the nail will remain tight in spite of vibration, and the nail is more easily handled than the nail with a separate washer, which is sometimes used to accomplish a similar purpose.



Glass Cutting Made Simple

WHEN architects want an oval or a circular piece of glass used in building a structure of their design they seldom stop to consider where this glass may be obtained, and rather properly put that problem up to the building material dealer and contractor.

And every building material dealer of extensive experience can relate harrowing tales of the difficulty of trying to



Cutting Ovals, Circles and Irregular Shapes in Glass Hold No Terror for the Inexperienced Operator in Shops Equipped with One of These Machines. The capacity of the machines vary with their sizes.

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Fenestra Everywhere

Upstairs—in the Basement—and out in the Garage

The time to sell a house is when you plan it—build your sales arguments into the building itself. And one of the best selling arguments you can have today is, "Fenestra Windows everywhere—in the basement, the rooms upstairs and in the garage."

Home buyers are quick to respond to that argument. They know that Fenestra is a better name for steel basement windows, steel casements and steel garage or "Utility" windows. They know that with these modern products their home will have more light and better ventilation and that it will be more modern, attractive and permanent.

Fenestra Basement Windows admit as much as 80% more light than wood windows, and make the whole basement bright, airy and usable. They never warp or stick or rot, and are fire-resistant and more secure.

Fenestra Casements

provide maximum light and air, are always easy to open and close, and can readily be washed, shaded and screened. They last as long as the building.

Fenestra Utility Windows

provide the advantages of Fenestra steel construction in the garage. Their large ventilator allows dangerous gases to escape and their broad panes admit more daylight. Their fire-resistant construction adds to their value in garage use.

Fenestra everywhere makes it possible for you to build better, more salable houses at little or no more cost. Write for the facts today.

Fenestra

WINDOWS FOR THE HOME

Detroit Steel Products Co.
2260 E. Grand Blvd., Detroit, Mich.

Please send me information regarding your

- ☐ Fenestra Steel Casements
- ☐ Fenestra Basement Windows
- ☐ Fenestra Utility Windows

Name

Address

cut circular and oval glass shapes as well as glass of irregular shapes without proper equipment.

Now this problem is solved by a machine made particularly for this purpose. The machine is shown in the accompanying illustration and is made in a number of sizes, from the smallest which will cut ovals from 1x1¼ inches to 12x15 inches, and circles from 1 to 14 inches, to the largest which has a capacity of ovals from 1½ to 19/16 inches to 24x24 inches and circles from 2 to 24 inches.

The machines are rugged in construction and their simplicity and ease of operation permits them to be used by inexperienced operators. Each machine is mounted on a well constructed hardwood centering board and is fitted with two metal stops to be used in centering the glass. Special shapes may be cut with the machine through the use of patterns.



Asphalt Joints for Sewer Pipe

ENGINEERS who have been experimenting with various materials for use in making pipe joints in concrete or terra cotta sewer pipes have found that asphalt makes an ideal pipe joint where dry, shifting ground, wet trench conditions, unstable or quicksand conditions exist.



A Joint for Sewer Pipe Has Been Developed. Its strength is shown by the illustration. Manufacturers claim for it the additional advantages of flexibility and ease of application.

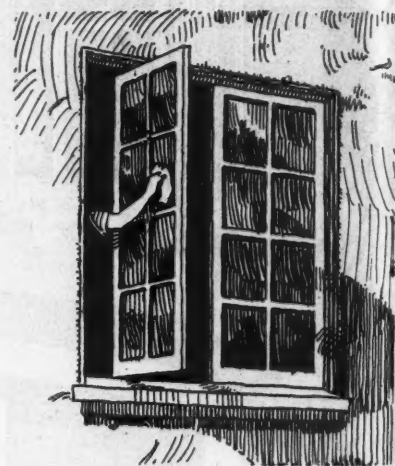
On the other hand an asphalt pipe joint is flexible and will remain tight in spite of a several inch settlement in sewer pipe with the result that infiltration of ground water into sewers during wet seasons is prevented. Watertight joints also prevent fine roots of trees from penetrating and forcing their way into sewer pipes.

Ease and rapidity of application to pipe joints are among the outstanding features of this material. When the asphalt pipe joint is used, the joints are first caulked with hemp or jute after which the asphalt, which has been heated to 400 degrees, is poured into the joints to be moulded into place by the use of forms or runners. The material cools in about 15 minutes and then the runners and forms may be removed and used elsewhere. Only sufficient caulking is necessary to hold the sections of the pipe rigidly in line while pouring the pipe joint asphalt and to prevent the filler from flowing through the joint.

Convenient Casement Hardware

THE charm of casement windows, long recognized, has lead to many efforts to overcome features which were recognized as drawbacks to windows of this type as they were built into homes by the pioneer builders of America, and before that time, by the builders of Europe.

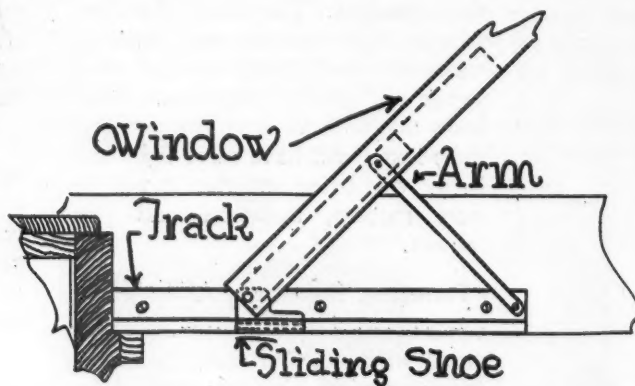
Chief among these subjects were the inability to secure the casement sash in an open position so that they were not slammed back and forth at the whim of the wind, and the difficulty of washing the windows installed where the outside could not be reached from the ground. This last difficulty, of course, was felt only where outswinging casements were used. But the outswinging sash allow a much more convenient arrangement of draperies and curtains.



Outswinging Casement Windows Which Can Be Washed From Inside the House Are a Convenience Which Will Be Appreciated by the Housekeeper.

Casement window hardware which is simple in operation and which holds the window in any position in which it is left and allows the glass to be washed with ease is now available. Another feature of this hardware which will appeal to the builder is its ease of application. Other features are that the hardware is non-rattling, that all the fittings are concealed, that no special sash or frame detail is required and that it may be installed to fit either right or left sash.

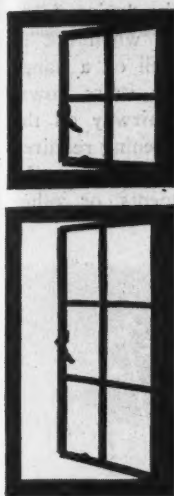
The hardware, as is shown in the drawing, consists of a track which is attached to the window sill below or the window head as the case may be. In this track slides a shoe which is jointed to the plate attached to the sash. At



Ease of Application Is a Feature of the Casement Window Fitting Shown Here. The appliance requires very little trimming of either the sash or the window frame and is attached with a few screws. It is entirely concealed when the window is closed.

the other end of this plate is an arm attached to the track. One of these fittings is required at the top and another at the bottom of each sash, taking the place of all hinges.

When the window is swung wide open, the inside edge of the sash is swung far enough from the window frame to enable the window to be washed from the inside of the home with ease.



Truscon Steel Casements made in three sizes as illustrated. 100% ventilation when open.

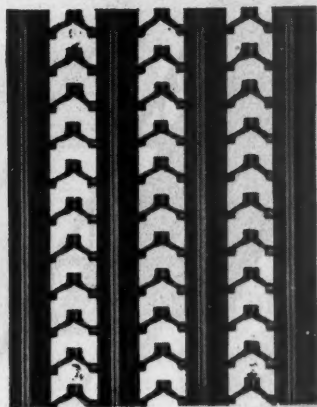


WINDOWS are the EYES of the HOME

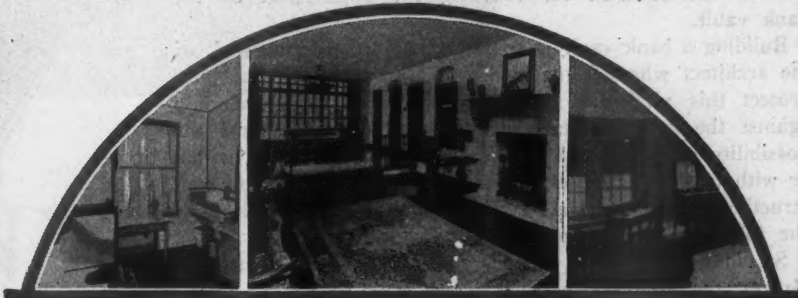
Windows affect, to a great extent, the exterior appearance and interior comfort of the home. Truscon Steel Casements are a quality product at quantity prices. They are fireproof, permanent and weathertight, operate perfectly and cost no more than ordinary wood windows.



Truscon Expanded Corner Bead protects plaster corners.



Truscon 1-A Metal Lath for homes. Reinforces the plaster and prevents cracks. Can be easily applied.

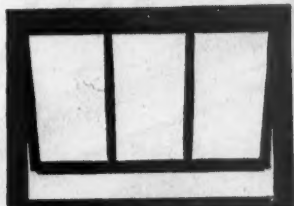


CRACKLESS PLASTER WORK

The use of Truscon Metal Lath prevents plaster cracks on walls and ceilings, and gives fire resisting, permanently beautiful interiors. Because its use enables the plasterer to cover a greater area in a given length of time, Truscon 1-A Metal Lath when used with $\frac{1}{2}$ " grounds costs practically as little as wood lath.



Truscon Steel Linet supports brick work over windows and fireplaces.



Truscon Steel Basement Window with 10"x20" glass. Window opening 2'9 1/4"x1'11".



Truscon Steel Basement Window with 10"x12" glass. Window opening 2'9 1/4"x1'3".



MAKING THE BASEMENT USEFUL

Truscon Steel Basement Windows give double the daylight of ordinary wood windows and make the basement an added room for work or play. Truscon Steel Basement Windows are permanent, durable and trim looking. Quickly installed in any type foundation and easily screened. With all their advantages they cost as little as wood. Dealers in all sections carry stocks for immediate deliveries.

Truscon Home Building Products give all the necessary essentials to a fireproof, long lasting, economical home. The Home Builder's Encyclopedia gives invaluable information to home builders. Send for a free copy of this interesting book.

TRUSCON STEEL CO., YOUNGSTOWN, OHIO

Warehouses & Sales Offices from Pacific to Atlantic. For addresses see phone books of principal cities. Canada: Walkerville, Ont. Foreign Div.: New York

TRUSCON

HOME BUILDING PRODUCTS

Movable Stairway Adapted to Use in Bank Vaults

MOVABLE stairways giving access to the attic and upper stories of a home without taking up any valuable floor space have been recognized as a space-saving convenience which adds to the value of modern homes for some time and progressive contractors and speculative builders have been using them to add to the attractiveness and salability of the residences they constructed.

The use of such a device in garages also has been found a workable plan of increasing the utility of those buildings by making the upper part of the garage available for storage space or for other suitable purposes.

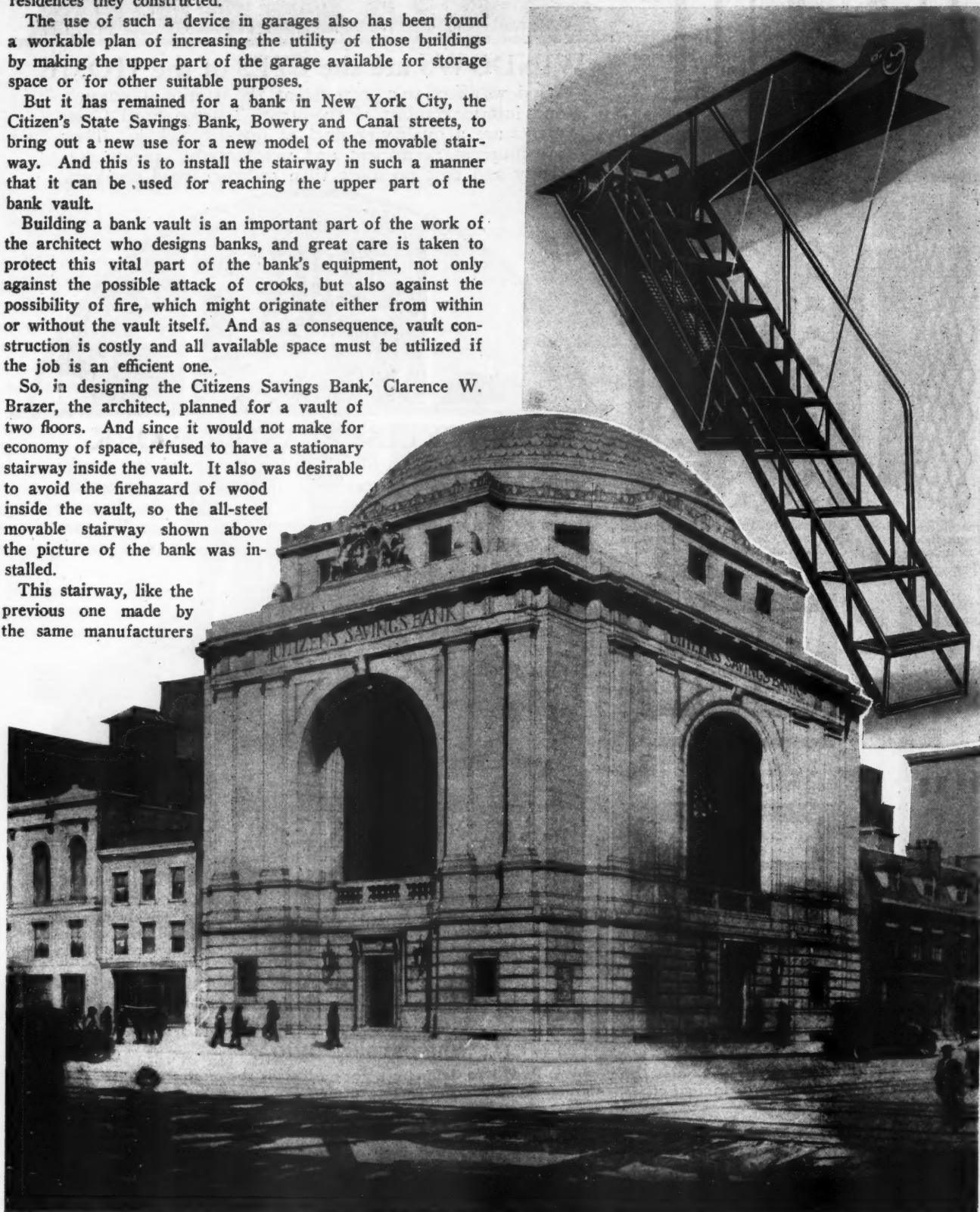
But it has remained for a bank in New York City, the Citizen's State Savings Bank, Bowery and Canal streets, to bring out a new use for a new model of the movable stairway. And this is to install the stairway in such a manner that it can be used for reaching the upper part of the bank vault.

Building a bank vault is an important part of the work of the architect who designs banks, and great care is taken to protect this vital part of the bank's equipment, not only against the possible attack of crooks, but also against the possibility of fire, which might originate either from within or without the vault itself. And as a consequence, vault construction is costly and all available space must be utilized if the job is an efficient one.

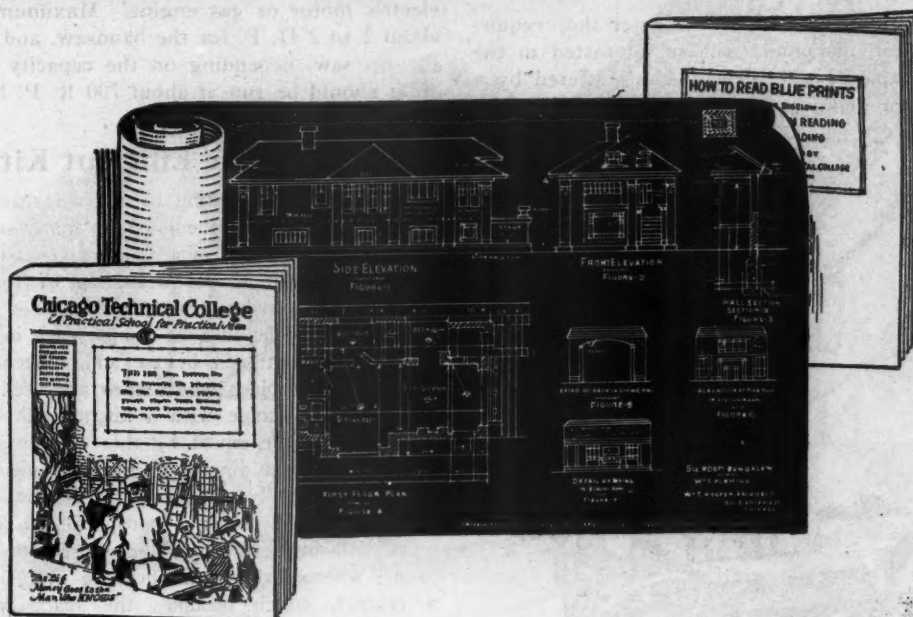
So, in designing the Citizens Savings Bank, Clarence W. Brazier, the architect, planned for a vault of two floors. And since it would not make for economy of space, refused to have a stationary stairway inside the vault. It also was desirable to avoid the firehazard of wood inside the vault, so the all-steel movable stairway shown above the picture of the bank was installed.

This stairway, like the previous one made by the same manufacturers

where wood was used in the construction of the device, folds up into the ceiling of the lower compartment when not in use and takes up no space at all. A simple pull on a hanging cord or handle brings the counterbalanced stairs down, ready for use. The space occupied by the stairway on the second floor is but little more than that of the opening required between the two rooms, and the saving in space which can be devoted to the storage of important documents or other valuables is considerable.



A New Idea in Bank Vault Construction Has Been Developed by the Manufacturers of a Movable Steel Stairway and Clarence W. Brazier, Architect of the Citizens Savings Bank, Shown Above. By eliminating wood from the construction of the stairway, the fire hazard was reduced and the movable feature makes much more valuable space for storage available. The new all-metal stairway is shown above.



SENT FREE

Mail the Coupon for These Two Books and Blue Print Plans

If you are in any building trade, we want to send you these 2 books and blue prints at our expense. One of these books contains a lesson in Plan Reading prepared by the Chicago Tech. experts; the other explains the Chicago Tech. method of training men by mail in the building trades for the jobs that pay the most money or for businesses of their own. All you have to do to get them is to mail the coupon. Don't send a penny.

Get the Knowledge That Will Make You Worth More Money

You may be as good a man as there is in the use of tools but as long as you remain a workman you won't earn more than the wage scale. It isn't manual skill that puts a man in big pay class—it's the ability to use his head that brings the fat pay check or enables him to "go in for himself." That has been proved over and over again by workmen who took the Chicago Tech. training in the higher branches of building and are now foremen, superintendents and contractors.

J. B. Woodside of Oklahoma was a carpenter working for \$6 a day when he took a course in training by mail at Chicago Technical College and was advanced to a foremanship in 2 months, became a superintendent 5 months later and then went into contracting.

Carl Testroat of Iowa is another man who got into a successful contracting business through his training, as did J. G. Hart of West Virginia, and C. W. Busch of Kansas.

Not only workmen have got ahead through this instruction but also contractors who were taking on small jobs because their experience was limited. Chicago Tech. has taught them how to handle the big jobs that pay the most money.

Train by Mail

Never before have there been such opportunities as there are right now for men with expert knowledge of building. You can get ready for these big opportunities if you will use some of your spare time to study at home under the direction of the Chicago Tech. experts. No time taken from your present work. All this will be explained when we send you the free books and blue prints.

Become a Building Expert

Plan Reading. Every man who has got very far ahead in any building trade can read blue prints. No man

can expect to be a first rate foreman or superintendent until he knows what every line on a plan means and how to lay out and direct work from the architect's plans. By the Chicago Tech. Method you quickly learn to read any plan as easily as you read these words.

Estimating. Of course a man who wants to be a contractor or to hold a big job in a contracting organization must know how to figure costs of labor, material, and everything else that goes into any kind of building. The Chicago Tech. course covers every detail of this important branch—shows you just how it is done from actual blue print plans.

Superintending. How to hire and direct men, how to keep track of every detail of construction as it goes on, how to get the work done in the least time at the lowest cost is also fully covered in the Chicago Tech. Builders' Course.

Also special courses in Architectural Drafting for builders, taught by practical men. These explained in Special Catalog "D" sent on request.

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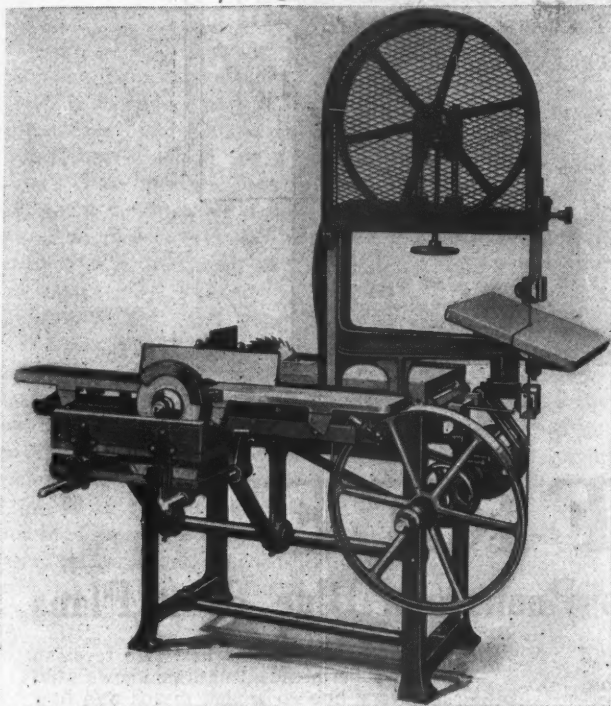
Occupation

CHICAGO TECHNICAL COLLEGE

Dept. 936, Chicago Tech. Building, 118 East 26th Street, Chicago, Ill.

Woodworker Planes 8-inch Boards

THE woodworking plant, mill, or carpenter shop requiring medium sized machines, will be interested in the increased planing capacity of a new machine offered by a firm which has been making woodworking machinery for some time.



Boards 8 Inches Wide May Be Planed on this Woodworking Machine, Which Is the Latest Development of a Firm Prominent in the Manufacture of Woodworking Machinery for Years. The planer table is made in two parts so that one part may be set lower to get the desired depth of cut.

The new planer head incorporated in the new product makes possible the planing of boards up to and including 8 inches in width. This represents an increase in width of 2 inches over the older design of the same firm, thereby adding to the working capacity. The planer table is made in two parts, which fit into the channel on the main table and are adjustable on an inclined plane. One part of the table may be set at a lower level when planing to obtain the desired depth of cut. The planer guide used here consists of a hinged plate, ground to a high finish. Any angle desired may be obtained with this particular guide arrangement for beveling purposes. A locked position is obtained by means of a single thumb nut.

The bandsaw on this machine is furnished with a well finished cast iron tilting table $17\frac{1}{2}$ inches long and $14\frac{1}{4}$ inches wide. This table may be locked in position by means of a positive action cam and handle. The bandsaw wheels are turned and balanced. Slippage of the saw, and heat from the blade is reduced by an endless rubber band acting as a face cover.

Method of drive with this machine is of the pinion and gear pulley type; this insures a smooth running machine. The gear ratio is approximately 2 to 1. The pulley pinion is cast in one piece, while the main shaft pinion is keyed to the shaft. Another feature worth noting is the handy belt shifter used here. The drive shaft is one inch in diameter and runs in 4 inch babbited and reamed bearings, split for adjustment. In addition the pulley for the jointer and the lower bandsaw wheel are also connected to this shaft by means of jaw clutches. This enables independent operation of each part, with resultant saving in power and wear on bearings.

The drive shaft of this machine may be mounted to an electric motor or gas engine. Maximum power needed is about 1 to 2 H. P. for the bandsaw, and up to 3 H. P. for the rip saw, depending on the capacity and feed. Drive-shaft should be run at about 700 R. P. M.



For the Efficient Kitchen

EFFICIENT utilization of kitchen space is a necessity in the modern apartment and is much sought in all classes of homes. More and more housewives are coming to realize that the kitchen is the workshop of the home and must be made as convenient as possible.

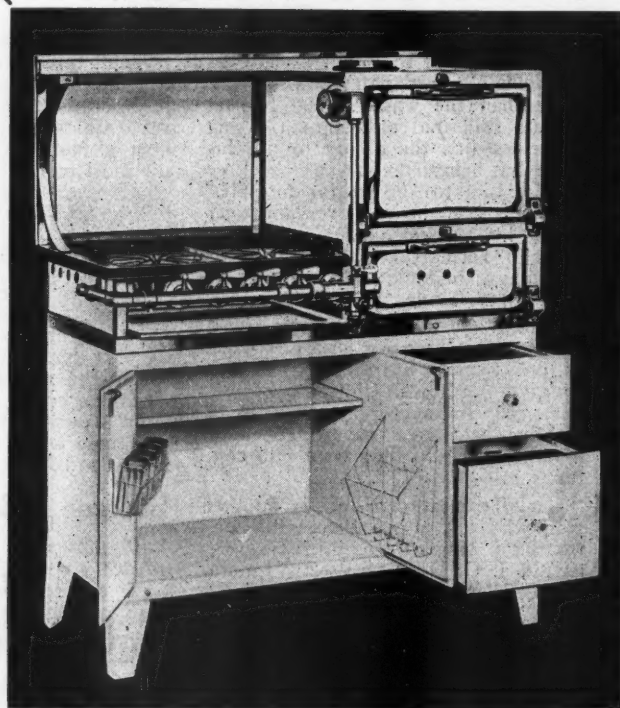
It was with the idea of using space in the kitchen which has not been utilized before and concentrating the kitchen utensils in the place where they are used that the combination of a gas range with a kitchen cabinet has been developed. The space saved by this device is money saved for the owner of buildings and the convenience of the arrangement is decidedly appealing to the housewife and an aid in renting or disposing of properties so equipped.

As will be seen from the illustration, the complete gas range, with a baking and broiling oven, is placed on top of a cabinet, which occupies the space wasted by ordinary gas range mounted on a stand.

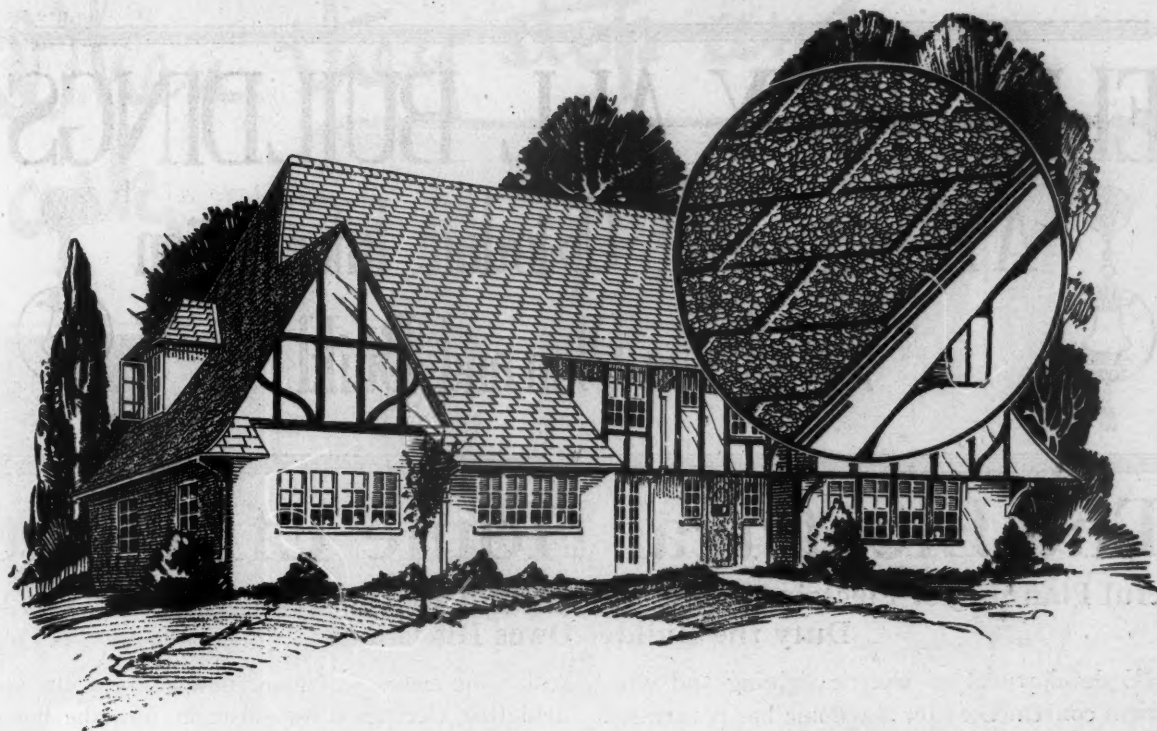
The combination cabinet and range, as furnished by the manufacturer has the top section finished in the best grade of white porcelain enamel and the bottom section in a special process white baked enamel. The cooking top is at a height designed for the most comfort. The oven is equipped with a device for controlling the heat and with special friction catch which simplify opening and closing of the door. The entire top is separated from the cabinet portion of the combination by heavy insulation and a space for the circulation of air which keeps the lower compartment and drawers cool.

The bottom section is arranged to hold the cooking utensils and supplies where they are within arm's reach of the cook, with convenient drawers and shelves for cutlery, and food-stuffs.

Other and smaller models of this device are available. The overall dimensions of the model illustrated are: width, 43 inches; height, 52 inches, depth, 25 inches.



This Efficient Piece of Kitchen Equipment Combines a Range and a Kitchen Cabinet in One Space Saving Unit.



This Shingle Builds "Good Will" For You!



Carey
ASFALTSLATE
SHINGLES
THE SHINGLE THAT NEVER CURLS

There is a genuine satisfaction for the contractor when he furnishes materials which he knows are going to give perfect service to the owner. Not only satisfaction, but profit, because there are no complaints later to eat into his margin.

The Carey Asfaltslate Shingle—"the Shingle that Never Curls"—is the one shingle that is certain to please the owner. It protects. The combination of heavy felt, asphalt and natural slate, resists the elements; heat, cold, rain and snow. And it is permanent. Once this shingle is down it is there for the life of the building.

A roof made of Carey Asfaltslate Shingles is a source of pride to the owner—and likewise a source of pride to the contractor.

Further, it is doubly economical. In the large size, 10 x 15 $\frac{3}{4}$ inches (weighing 300 lbs. to the square), it allows a 5 inch exposure and still makes a three-thickness roof. This means quicker application, requiring less time and less nails.

You'll understand the popularity of the Carey Asfaltslate Shingle when you get all the information. Let us tell you more about it.

THE PHILIP CAREY COMPANY
510-530 Wayne Ave., Lockland, Cincinnati, Ohio

THE PHILIP CAREY COMPANY,
510-530 Wayne Ave., Lockland, Cincinnati, O.

Gentlemen: Please send copy of "Before You Build" booklet to

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ELECTRIFY ALL BUILDINGS

A Department of Up-to-date Information
for all who Plan and Build

The Electrical Home Efficient

Careful Planning of Electric Wiring and Equipment Is an Important Part of the
Duty the Builder Owes His Client

THE development of electric lighting and electrical conveniences for the home has progressed so rapidly that it behooves the builder to give the problem of proper planning of the electrical wiring and equipment of the home constant study if he is to serve his patrons to the full extent which recent developments in the field will permit.

It is not surprising that few know the extent to which electricity can be made the convenient servant of the household when it is remembered that it is

within the memory of many now active in the building field that electricity was brought into the home. It is less than half a century ago that the first crude forerunner of the modern electric light gave out its faint radiance in the laboratory of Thomas A. Edison, and its development in that short space of time to a convenience available in most of the homes in America is nothing short of marvelous.

And it is not strange that users of light may still consider the convenience of pressing a button and



This Charming Dutch Colonial Home Can Attain Its Maximum Efficiency Only if the Lighting and Electrical Equipment Is Planned Wisely and Installed Carefully. Floor plan with model electrical wiring shown on page 180.

When they stop and ask



"Where do you turn the light on?"—you show them how you have provided for their convenience with switches that light one room from another so that it is never necessary to enter a dark room or go back to turn the lights out.

57,000 people inspect one house

An electrical home exhibited last year attracted 57,000 visitors.

These people took the time to go because the house was convenient—electrically convenient.

Electrical home exhibits never fail to draw crowds—a fact that many builders are turning to good account in equipping their houses.

They make quicker sales and get a better profit by making all their houses "Electrical Homes"—with complete wiring and dependable wiring devices.

G-E Reliable Wiring Devices, nationally known as the standard of excellence, are the home buyer's assurance of dependable electrical service.

Merchandise Department
General Electric Company
Bridgeport, Connecticut

G-E Wall Elexit outlet for "plugging in" side lights or electrical appliances. G-E Two-Gang Tumbler Switches at every doorway give complete control of light from one room to another.

All dependable and experienced contractors using General Electric Reliable Wiring Devices are prepared to cooperate with you in making your houses "complete electrical homes."

Our national advertising and the booklet "The Home of a Hundred Comforts" are focusing the attention of hundreds of thousands of home builders and buyers on complete wiring and quality wiring devices.

Send for your copy of this booklet today.

Address Section A, B, 9.



DEPARTMENT

ELECTRIC

enjoying the resultant light so great that they have overlooked the additional advantages which may come from the proper placing of the button to be pressed. But as householders become more accustomed to the use of electricity, they demand the utmost in convenience in the arrangement of the wiring and fixtures. It is to show proper practice in planning residence wiring that the full wiring diagrams of the excellent Dutch Colonial home illustrated are presented with the recommendations as to fixtures and lights of a corps of illuminating experts.

The plans of the experts call for weatherproof ceiling type lanterns equipped with 40 watt Mazda B clear lamps for both the front and rear entrances. Both of these lights are controlled from switches inside the doors.

For the front hall the plans provide a ceiling outlet for a globe fixture with a 60 watt Mazda B clear lamp or a suspended type hall lantern with three 25 watt round bulb Mazda B all frosted lamps. A convenience outlet, 36 inches high, in the hall may be used for table lamps.

The living room has a ceiling outlet for a cluster type suspension fixture using four 40 watt Mazda B lamps, all frosted, and it is suggested that they should be shaded with tinted, decorated glass shades. The wall brackets are placed 60 inches from the floor, designed so that the lamps, 25 watt Mazda B clear, will burn base down in shades to match the ceiling fixture. Convenience outlets are well arranged in the baseboard for floor lamps and a floor outlet is provided in the center of the room.

The dining room is lighted from a dome hung from the ceiling and equipped with a 100 watt all frosted Mazda C lamp. This is mounted so the lower edge of the dome is 54 inches from the floor. Convenience outlets are placed in the baseboard and a floor outlet in the center of the floor where it may be convenient for the dining table.

In the kitchen the main lighting unit is planned to be a 100 watt Mazda C clear lamp on the ceiling in a

squat enclosing globe. The wall outlet over the sink is 60 inches from the floor for a bracket carrying an opal glass reflector and a 50 watt white Mazda lamp. The metal part of all kitchen fixtures should be finished in white enamel.

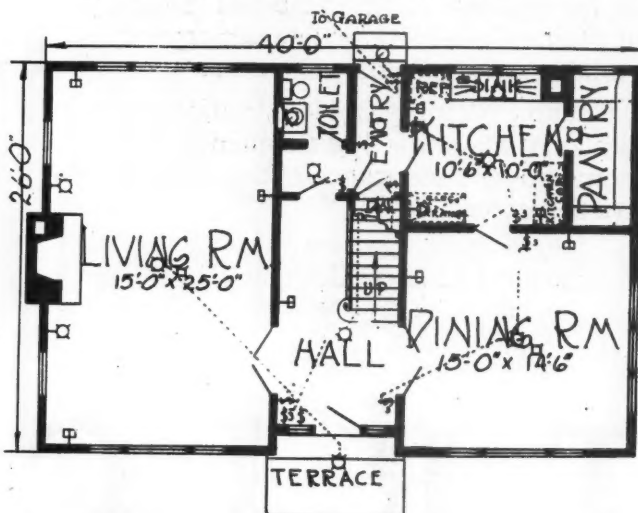
A convenience outlet is placed above the window for the exhaust fan and another is correctly located, five feet from the floor, for the electric refrigerator. A twin convenience outlet, 36 inches from the floor is provided for the many efficient electrical devices which bring comfort to the modern kitchen. The electric range requires a 30 ampere power outlet. In the pantry the wall outlet above the door is equipped with a pull chain socket and a 50 watt white Mazda lamp. The pull chain should be of sufficient length to be within easy reach when the door is opened.

The rear entry and hall is provided with a ceiling outlet for an opal glass reflector and a 40 watt Mazda B all frosted lamp.

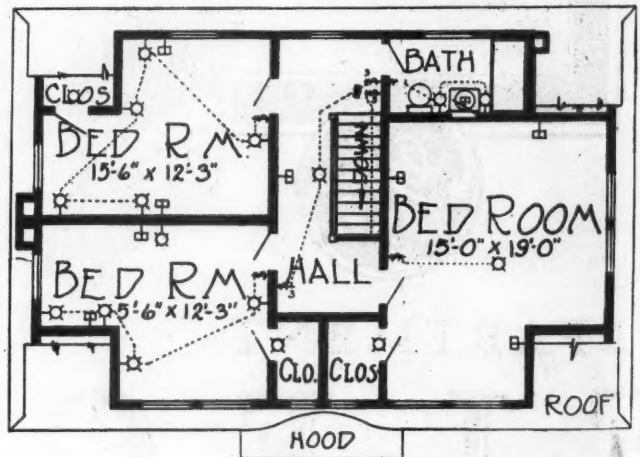
In the hall on the second floor a ceiling outlet provides for a globe fixture with a 60 watt Mazda B lamp. A convenience outlet is planned 36 inches from the floor. In the bathroom are two wall outlets for bracket fixtures, the light source to be 65 inches from the floor, one on each side of the mirror. All frosted Mazda B lamps of 25 watts are used in both. A convenience outlet is located between the wash bowl and the medicine chest.

The two smaller bedrooms are lighted by the wall bracket outlets indicated in the diagram, with the brackets 60 inches high. The candlestick type of fixture is recommended, with 25 watt round bulb all frosted Mazda B lamps if there is but one socket and 15 watt lamps of the same type if two bulbs are on each fixture. These are to be supplied with glass or silk shades or shields. Convenience outlets are planned for each room.

In the large room a ceiling outlet provides for a semi-indirect fixture with a 100 watt Mazda C clear lamp. A number of convenience outlets provide for floor and dresser lamps.



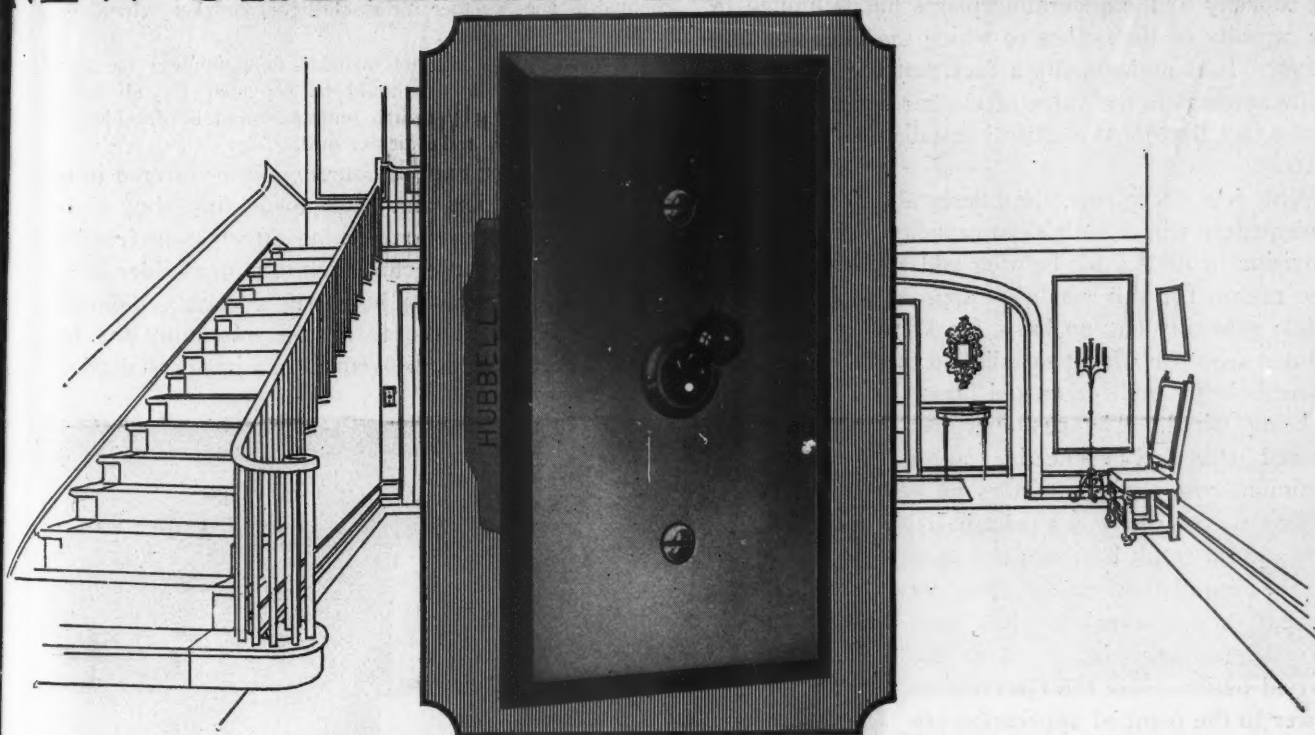
The First Floor Plan of the Electrical Home Efficient Is Provided with an Adequate Number of Convenience Outlets, Placed as Explained in the Article.



Daylight and Lamplight Both Are Given Proper Consideration in Planning the Bed Rooms on the Second Floor of the Electric Home, Illustrated on Page 176.

HUBBELL

NEW STANDARD TOGGLE SWITCHES



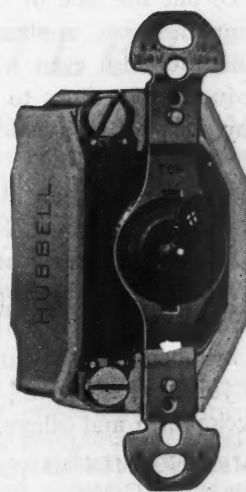
Body No. 8641; Plate No. 8291

EQUIPPED with improved mechanism—quiet, quick-acting and easily-operated.

Toggle arm of black "Bakelite" or brass. Brass arm can be supplied with luminous tip.

Made in single pole, double pole, three-way and four-way types.

HARVEY HUBBELL INC.
ELECTRICAL WIRING DEVICES
BRIDGEPORT CONN. U.S.A.



SHALLOW BODY
Only 1 1/8 inches deep;
suitable for thin partitions.

ELECTRICAL WIRING DEVICES



WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN BUILDER

Recommended Minimum Specification for House Wiring

THE entire electrical industry of the country is giving active attention to the question of house wiring. It is recognized that the ability of the industry to serve the public is not measured only by the capacity of the generating plants but is limited by the capacity of the outlets to which the lines are connected. It is undoubtedly a fact that the public generally appreciates the value of electric service and it is also a fact that most electrical installations are inadequate.

With few exceptions, the houses already wired are inadequately wired, both as to capacity of circuits and provision of outlets for lighting and appliance service. The reason for this condition appears to be that the public generally has no basis for knowing what constitutes a proper wiring installation at the time a new house is being built or an old house is being wired. The customer has desired electrical connection at a minimum cost and contractors have necessarily competed on a price basis. The natural result has been that cost of the installation rather than its capacity and convenience has been the determining factor and the myriad outlets from the reservoir of power to the point of application are throttled at the "nozzle."

This means not only restriction of lighting service but the sale of current consuming domestic appliances is checked and their use even when purchased reduced sometimes to the zero point by lack of convenience outlets.

With a view of correcting these conditions the accompanying "Recommended Minimum Specification for House Wiring" has been prepared, as a result of many conferences of the members of the Wiring Committee, Joint Committee for Business Development and others.

RECOMMENDED MINIMUM SPECIFICATIONS

1. There should be at least two circuits for each residence or apartment.
2. In each main room—i.e., parlor, living room, dining room, kitchen, bedroom or other room used for dwelling or sleeping—there should be at least one lighting and one convenience outlet.
3. In each other space—i.e., laundry room, bath, pantry, unfinished attic, cellar, hall, stairway, entrance porch, etc.,—there

should be at least one lighting outlet; and, in each main hall-way, laundry room, bath and pantry a convenience outlet should be installed.

4. An outlet is defined as the point where the wires come to an end at the ceiling, wall or floor, and all outlets are counted as one, whether for single lights, brackets, chandeliers or convenience outlets.

5. Switch outlets are not included in computing the above minimum, but switches should be provided for all ceiling outlets, and three-way switch outlets should be provided for the control of hall and stairway outlets.

This minimum can, of course, only be offered in the way of suggestion and recommendation—but if the prospective customer on seeking information from his central station, contractor, architect, or builder is advised against installing less than a certain minimum and all advisors agree as to this minimum, the tendency should be an improvement in wiring installations.



It Is Almost Impossible to Imagine Such Structures as the Woolworth Building of New York City If It Were Not for the Service of Electricity. This picture shows the beautiful, lofty tower of the Woolworth Building, illuminated by flood lights.



Good Construction Shows—in CONVENIENCE OUTLETS

More in evidence, more numerous in modern-planned rooms, these devices come in for more careful selection by builders and architects.

Placed prominently on walls and wood-work, the outlets share the positional importance of *switches*, as show-places of the electrical work.

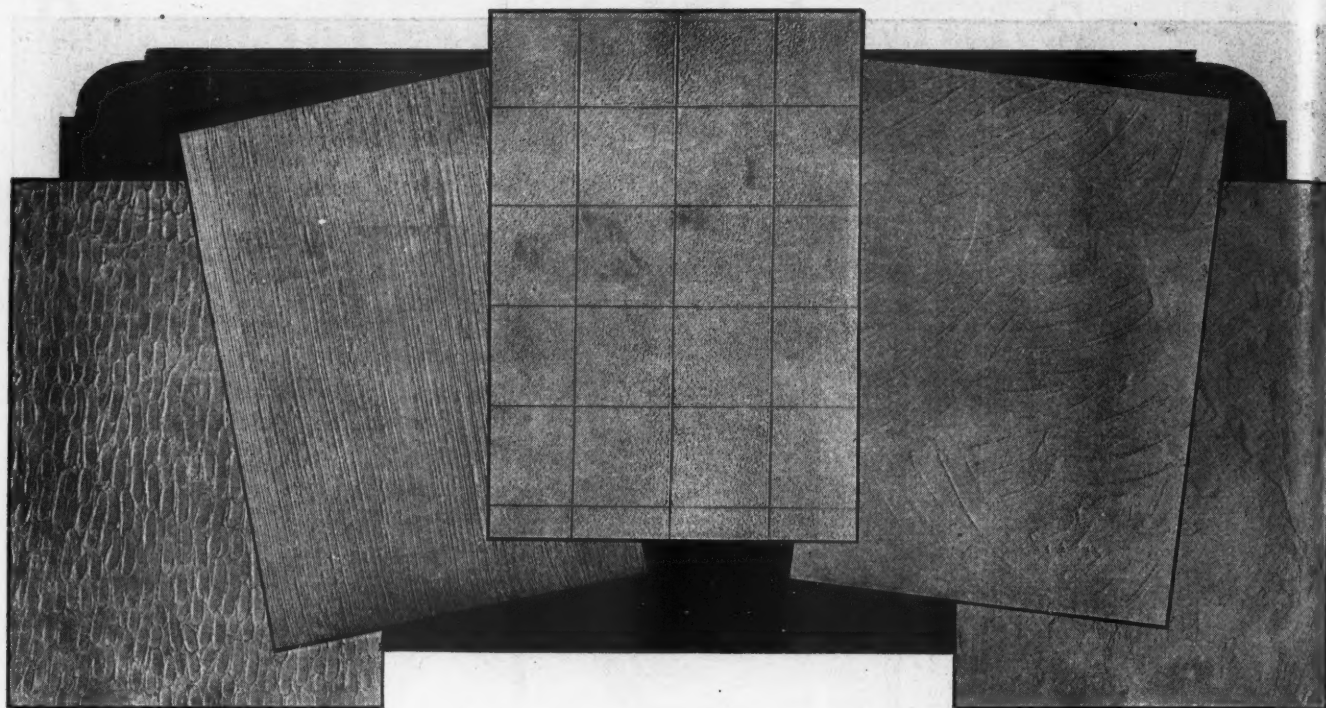
So, the builder looks to the makers of fine switches as the logical makers of fine receptacles. *H&H* on a Convenience Outlet means what it's meant on a Push Switch for 30-odd years—though the standard is new to receptacles.

T-Slot openings (take all standard plugs) with channel grooves for guiding the parallel blades. One-piece composition, with cross-hatched face, so neatly cast that it seems carved. Contact jaws with a sure grip, tempered to hold. Gun-metal (rust-proof) finish on supporting frame, matching the composition base. Side-wired, with *line* side terminal identified by nickel binding screw . . . &c.

In some ways the product seems better than receptacles need be—were the price made higher in consequence. But receptacles by *H&H* cost no more than others by anybody, and the specifications for *every* good style will be sent you in circular form or in catalogue, as you wish.

THE HART & HEGEMAN MFG. CO. HARTFORD, CONN.





What Do You Know About *Textone*?

People will be asking you now to give them Textone finishes. You will do well to prepare for the demand.

Textone is the new decorating material developed and perfected by the United States Gypsum Company.

With Textone you can supply the most beautiful wall and ceiling effects, in Period styles, "Caenstone," "Tile" and other designs.

Textone adheres perfectly to any surface, plaster, plaster wall-boards—Sheetrock—wood, fibre, tile or cloth. It can be applied white or in any color desired. Make your own color effects by mixing in whatever colors you want. Textone is easy to work with and quickly applied. Comes in white dry powder form, 25 lbs. to a package. Full directions for applying it are furnished with every package.

Send the attached coupon immediately for complete information about Textone, what it is, how it is put on, what it does.

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Please send me your Textone folder, together with complete instructions on the application of Textone, and a sample of Sheetrock finished with Textone.

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SURFACE FLOORS

It may be hard to realize that the "American Universal" Machine has actually cut the cost of floor surfacing 80% but hundreds of users are proving it by actual tests every day. Competitors of yours are probably among them. They not only are surfacing floors for about one-fifth the cost of hand scraping but they're turning out far better work.

One unskilled man with an

American Universal FLOOR SURFACING MACHINE

can positively do as much work as five or six fast hand scrapers and he can produce a beautiful, smooth, clear, perfect surface which is impossible to produce by the slow and costly hand scraping method.

Handscraping therefore means a needless waste of about eighty cents for every dollar paid in wages.

Stop
That Leak

SAVE
80%

Why not take your hand scrapers off their knees and put them on jobs that are profitable? They'll be better satisfied and you'll be money ahead. You'll eliminate a labor problem, you'll more easily meet competition, you'll better please your customers, you'll improve your business and you'll materially increase your profits.

You can keep an

American Universal FLOOR SURFACING MACHINE

busy every day in the year. Even if you haven't enough floor work of your own, you will find that other contractors are glad to be relieved of the hand-scraping nuisance and welcome the chance to turn their surfacing work over to the "American Universal" owner. Scores of our customers write us that they have established an independent branch of their business through the use of the "American Universal" and that by going out after new and old floor surfacing jobs are actually clearing \$5000 to \$10,000 a year on this work alone—some of them are now operating as many as ten machines.

Write Us Today for Interesting Details

Let us send you descriptive literature regarding the "American Universal" Floor Surfacing Machine, together with letters and statements from dozens of large and small contractors who are using it. Your inquiry will not obligate you in any way whatever. Do it now.

The American Floor Surfacing Machine Co.
515 South St. Clair St., Toledo, Ohio

American Floor Surfacing Machine Co.
515 S. St. Clair St., Toledo, Ohio

Please send me without obligation, full information regarding American Universal Floor Surfacing Machine.

() I am a contractor and want machine to use in my business.

() I am interested in surfacing floors "The American Universal" way as a business.

Name

Street

City

State

SAVE THE WAGES OF THESE SIX MEN !



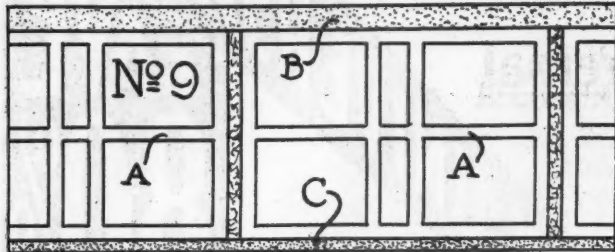
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More for Buildings—Less for Fuel

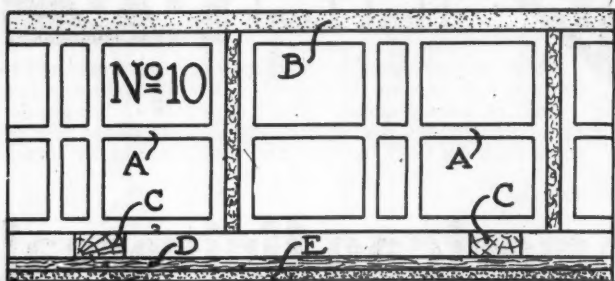
(Continued from page 143.)

and with health authorities in some cities warning the public that such caution is needed to safeguard life itself because of cold, there opens to manufacturers of good heat-stop materials an enormous market in the old buildings now standing from the Atlantic to the Pacific as well as the new buildings. The mistakes of the past in accepting air spaces as adequate insulation, whereas it is nothing of the sort, and

Hollow Tile or Block Walls



A—Tile B—Stucco C—Plaster



A—Tile B—Stucco C— $\frac{7}{8}$ " Furring Strips D— $\frac{1}{2}$ " Insulation E—Plaster

No. 10 Is $33\frac{1}{3}$ More Efficient Than No. 9.

of supposing that heat losses were stopped simply because walls were thick, rapidly are being discredited by the scientific use of data now available (and that which will be added) on fuel losses by heat transmission. As ratings show what becomes of excessive heat expensively created, the heat-stopping cannot fail to become not the exception as at present, but as general as the use of white enamel bathtubs. Folks do not have to be penalized more than once for high fuel cost buildings to adopt the other standard which gives so much of comfort and money saving to the occupants and so much more of safety to investors in buildings and bonds.

✦

Quarrying Indiana Limestone

(Continued from page 110.)

In the old days, stone cutters with mallet and chisel slowly and laboriously dressed the stone into ashlar, or moulded cornices and sills. The modern stone planing machine does the same work in a fraction of the time required by hand, and does it even more accurately. Large pieces of stone are lifted by electric traveling cranes and placed on the bed of the planers,

the machines frequently attaining a cutting speed of 42 feet a minute.

Perhaps an even more striking illustration of the speed and efficiency of machinery over hand labor in the stone mills is in the making of balusters. Formerly the most expert stone cutter required from ten to twelve hours to fashion a single two-foot baluster. Today there is a carborundum wheel, cut to the pattern of the baluster, which moves at the terrific speed of 1,376 revolutions per minute. It grinds on a piece of stone sawed on all six sides and turns out the finished baluster in fifteen minutes.

✦

Instructions in Roof Framing

(Continued from page 149.)

that must be deducted from the length of the valley jack. If $1\frac{1}{8}$ inch valley and jack rafters are used this distance will be $2\frac{1}{4}$ inches approximately, as found by measuring diagonally across a $1\frac{1}{8}$ inch piece.

Sometimes the length is taken between both long points of the cripple rafter and nothing is deducted, but this is not very accurate. This will make the rafter too long. See the plan view Fig. 44.

Problems

- Given a $\frac{3}{8}$ pitch roof with jack rafters spaced 2 feet 0 inches on centers.
 - Find length of shortest jack; of 2nd; of 3rd.
 - Give figures to be used on square for plumb and seat cut.
 - Give figures on square to be used for side cut.
- Given a $\frac{3}{4}$ pitch roof with jack rafters spaced 16 inches on centers.
 - Find length of 1st, 2nd and 3rd jack.
 - Give figures to be used for plumb cut.
 - Give figures to be used for side cut.

Answers

- The length per foot run for $\frac{3}{8}$ pitch is 15 inches. Length of 1st jack is $2 \times 15 = 30$ inches, or 2 feet 6 inches. Length of 2nd jack is 2 feet 6 inches + 2 feet 6 inches = 5 feet 0 inches. Length of 3rd jack is 5 feet 0 inches + 2 feet 6 inches = 7 feet 6 inches.
 - For plumb cut use 12 and 9 on square as the rise is 9 inches per foot run.
 - For side cut use length per foot run on tongue and 12 inches on blade; 15 and 12 in this case.
- The length of 1st jack is $1\frac{1}{3} \times 21.63 = 28.84 = 2$ feet $4\frac{27}{32}$ inches. The length of 2nd jack is $28.84 + 28.84 = 57.68$ inches = 4 feet $9\frac{11}{16}$ inches. The length of 3rd jack is 57.68 inches + 28.84 inches = 86.52 inches = 7 feet $2\frac{1}{2}$ inches.
 - For plumb cut use 12 and 18 on the square as the rise is 18 inches per foot run.
 - For side cut use 12 and $12\frac{1}{2}$ as the "length per foot run" is 21.63 inches. $21\frac{1}{2}$ is near enough to 21.63 for obtaining side cuts.

One builder said to a client—

"You can't afford a cheap roof. It will cost you too much in repairs and damage from leaks. The best roof you can get is actually the least expensive. I know—from years of experience."

This builder uses and recommends Genasco Ready Roofings. He realizes—as every successful business man—that satisfied customers are his best asset. And he knows that Genasco Roofings give satisfaction.

Genasco Ready Roofings—roll and shingle—are built on a foundation of rag felt, heavily protected top and bottom by layers of Trinidad Lake Asphalt Cement, *a material practically immune to damage by weather.*

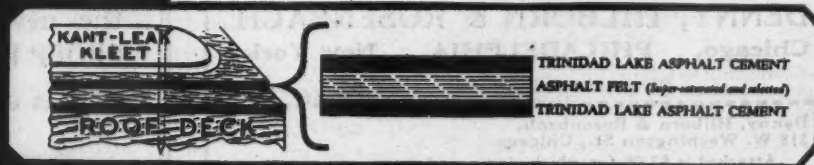
Genasco Roll Roofing is especially suited for farm buildings, factories, train sheds, roundhouses, warehouses, lumber sheds and all places of storage. Made in two styles—smooth surface and slate surface.

Genasco Latite Shingles meet the need for an attractive, durable, fire-safe roofing for homes, churches, schools, etc. Made in three natural, unfading colors—red, green and blue-black.

We will gladly send you attractive folders on Genasco Roofings. Write at once.

The Barber Asphalt Company

New York Chicago Philadelphia St. Louis Kansas City
Pittsburgh San Francisco



Cross-sectional view of Genasco Roll Roofing. Diagram also shows method of laying with Kant-Leak Kleets.

Report on Seasonal Unemployment

(Continued from page 140.)

Bristol made this comment: "It is common knowledge that work in the building trades is seasonal with a resulting loss of several months' income during each year. Weather conditions are often unfavorable even during the building season, time is lost in moving from one job to another, and building operations are usually at a standstill during the winter months.

"The average amount of work in the building trades during the normal year seems to be in the neighborhood of eight months, certain trades doing some work nearly every month of the year, others falling as low as only five months of actual work."

Professor Bristol prepared a table showing the average time lost for all building trades in Cedar Rapids for the three-year period, 1920-1922. The table follows:

	Number of Men	Months at Trade	Months at Other Work	Months of Time Lost
Carpenters	424	8.0	0.0	4.0
Masons	77	7.8	0.0	4.0
Electricians	37	10.0	0.0	2.0
Painters	113	7.2	2.3	2.5
Paper Hangers	40	7.2	2.3	2.5
Plasterers	22	8.0	1.0	3.0
Plumbers	42	10.5	0.0	1.5
Sheet Metal Workers	58	11.0	0.0	1.0
Laborers	327	8.0	2.0	2.0
Cement Finishers	16	6.0	2.7	3.3

The Department of Commerce, from knowledge

gained from the nationwide survey, contends that not only in Cedar Rapids but in every other part of the country as well, the unemployment question relating to the building trades can be greatly relieved.

It says that with modern machinery and methods of heating materials many forms of building can now be carried on even in freezing and rainy weather. Even the placing of steel, concrete and masonry work can go ahead in inclement weather, according to the report, if shelters are provided and materials properly prepared.

\$5,000,000,000 Annual Building Bill

Due to the custom of cutting down building operations in winter, millions of workers in the construction industry and material producing companies are at work less than three-fourths of the year and are fully employed for only three to five months. As evidence of the scope and importance of building the report says that the industry amounts to more than \$5,000,000,000 annually in the United States.

For the purpose of encouraging building during what has been known as the off season, the Division of Building and Housing of the Department of Commerce is prepared to supply communities with data for determining what average weather conditions may be expected over a given period, for the use of builders. The Division will also supply a chart for scheduling the beginning and completion of new buildings and repair work.

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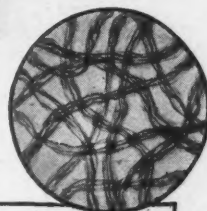
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The home of Harry Sharp, Esq., Brendenwood, Indianapolis. Robert F. Daggett, Architect. John Curry Construction Co., General Contractors. Richardson Multicrome Roof applied by Ralph R. Reeder & Sons

Note under the microscope how the long fibres of Richardson felt interlock to bind the Viskalt into an enduring weather-proof armor



The 50% greater thickness of this roof adds beauty of texture and years of endurance. Closely overlapping slate flakes further protect the sturdy Viskalt-saturated base against weather and fire hazards

Distinctive beauty marks the roof of this Indianapolis home

A roof with a wholly unique thatched effect of weathered brown adds the final touch of beauty to the country home of Harry Sharp, Esq., Brendenwood, Indianapolis.

This unusual roof was secured by trimming Richardson Super-Giant slate-surfaced shingles into different shapes and sizes; and by using them for the ridges and valleys as well as on flat surfaces.

The distinctive color of this roof—*weathered brown*—is found only in the Richardson quarries of Georgia.

The Richardson Multicrome Roof

This, however, is but one example of the beauty secured in the Richardson Multicrome Roof. Many color effects are possible—one to please every taste. The rare weathered brown, for instance, is attractive when applied with other

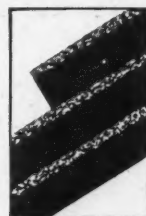
Richardson Shingles of jade green, tile red or black pearl. And the new opal roof is also greatly admired.

The Multicrome Roof is built of Richardson Super-Giant Shingles, extra large, extra heavy—to give greater beauty, longer endurance. The high quality of its inner materials, too, assures lasting beauty for this roof. Its base is sturdy Richardson felt, for fifty years recognized as the best. And the waterproofing is Viskalt—unusually durable because 99.8% pure bitumen, especially vacuum-processed.

Richardson Multicrome Roofs are economical to lay and equally good for new or over-the-old-roof jobs. Send coupon for samples.

The RICHARDSON COMPANY
Lockland (Cincinnati) Ohio

Chicago New York City (1008 Fisk Building)
New Orleans Atlanta Dallas



**Richardson
Multicrome
Roof**



**Ordinary
Roof**

[*cross sections
equally enlarged*]

Clip and mail this coupon

The Richardson Company
Lockland, Ohio

Gentlemen:
Please send me samples of Richardson Super-Giant Shingles, your new booklet, and further facts about Richardson Roofing.

Name

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LOK-TOP ASPHALT SHINGLES

(Patented)



Lok-Tops are especially adapted for use over worn out roofs—it isn't even necessary to remove the old shingles

Protection that's locked on your roof

There's no question about the weatherproofing which this shingle gives. It can't leak nor blow up because it is locked fast to the roof on all four corners. A special patented Lok holds it firmly on the roof in any weather.

The artistic pattern of Lok-Tops and their rich colors of green, red or blue-black slate give an unusually handsome roof. And the guaranteed quality of their inner materials makes this beauty permanent.

Lok-Top Asphalt Shingles can be easily applied over old wooden shingles as well as on a new roof. And they are approved by the Underwriters' Laboratories as fire resistant.

Ask your dealer or jobber about Lok-Top Asphalt Shingles. If they cannot supply you, write us direct.

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RICHARDSON ROOFING

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The Richardson Co.
Lockland, Ohio

Gentlemen: Please send me complete information on Lok-Top Asphalt Shingles.

Name

Address

Books, Bulletins and Catalogs for You

THE literature and publications listed here are available to readers of the American Builder. They may be obtained from the firms mentioned and will be forwarded without cost except where a price is noted.

"Faience Tile Fireplaces" is the title of an attractive book issued by the McWayne Co., 639 North Wells Street, Chicago, which shows a number of fireplace mantels of faience tile of different sizes and design. Drawings of fireplaces are shown and the dimensions are given in detail. Other products of the company are listed and illustrated in the book.

Miles Concrete Equipment, catalog No. 309 of the Miles Manufacturing Co., Jackson, Mich., shows in detail the Miles block machines, the Miles power tampers, the continuous mixers and the large line of face plate designs and pier and chimney molds supplied by the company. In addition it devotes considerable space to photographic reproductions of attractive buildings of concrete blocks and has a section devoted to plans for concrete homes.

"The Book of Built-In Furniture," issued by the Built-In Fixture Company, 2608 San Pablo Avenue, Berkeley, Calif., describes and illustrates a most ingenious line of built-in conveniences for the modern home. The Peerless fixtures, manufactured by the company, comprise breakfast nook assemblies which may be folded into the wall when not in use, table cabinets, wall seats which may be folded into the wall when not in use, ironing boards which may either be built into the wall or be furnished as part of a door for a cupboard or broom closet and a number of other cleverly designed units. All of these fixtures are made in units which permit their assembly in a number of different attractive and space saving combinations.

"Proper Treatment for Floors, Woodwork and Furniture" is the title of a valuable book issued by the S. C. Johnson & Son Co., Racine, Wis. Price 25 cents. The book, attractively illustrated in colors, gives explicit directions for finishing floors, woodwork and furniture. Among the topics treated are: How to Finish New Woodwork; How to Refinish Old Woodwork; How to Treat New and Old Floors; How to Prolong the Life of Linoleum; and How to Refinish Old Furniture. In addition it lists the very comprehensive line of products of the Johnson company. An interesting feature of the book is the reproduction in colors of a number of woods after treatment with the various Johnson Wood dyes.

The Sterling Convertible Level is described and instructions for its use given in a notebook of a convenient pocket size issued by the Warren-Knight Co., 136 N. Twelfth St., Philadelphia, Pa. The first edition of this convenient notebook was published a few months ago and soon was exhausted by contractors, engineers and others who appreciated its usefulness. A continued demand for the booklet brought about the publication of a new issue, which may be obtained by writing to Department "F" of the Warren-Knight Company.

"Compendium of Building Data," compiled and edited by J. Soman, B. S. C. E. (Jual Publishing Co., 581 East 170th St., New York, N. Y.; price \$1.) is a body of charts and estimating data compiled in an eighteen-page book in such a manner as to relieve the architect of much of the burden of calculation. It is made particularly applicable to the New York building code. It is stated that the book is intended primarily for those with a proper knowledge of structural design and is not intended to encourage structural design by those not competent. Charts and diagrams give allowable strains for steel sections, beams, yellow pine floor joists, data on allowable floor loads or concrete slab and much other valuable data.



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coating thoroughly and uniformly covers the surface to be painted, and has greater hiding power than a brushed coat.

The DeVilbiss spray gun applies any kind of paint at the lowest practicable air pressure, and is easy and non-tiring to operate.

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A long performance record of making good in every field of painting emphasizes **ADAPTABILITY** as one of the outstanding features of the DeVilbiss Spray-Painting System.

This DeVilbiss adaptability means that you can spray-paint practically the entire surface of houses and all that goes with them: spray-paint public, factory and other buildings, inside and out; spray-paint other structural surfaces, large and small, of wood—concrete—plaster—brick or metal. And, by doing all this painting the DeVilbiss way, means that you can do faster and more work, get improved and more satisfactory results, make bigger and more painting profits.

The speed of DeVilbiss spray-painting averages 4 to 5 times that of hand brushing. The sprayed

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Our representatives, located in the principal cities and land centers of the United States are men competent by training and experience to lend the most

expert aid to those who want to buy or sell land. Each has an intimate knowledge of land values in his locality. Each knows of the most desirable places that are to be had—farms, orchards, poultry farms, ranches, plantations or estates.

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large cities of the country mean added service to you—whether you are a buyer or seller.

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Radford Land Organization offers to prospective land buyers an efficient purchasing personnel. To those who have land to sell Radford Land Organization is in a position to get your offer before the greatest number of prospective purchasers. Lands for sale are listed absolutely free.

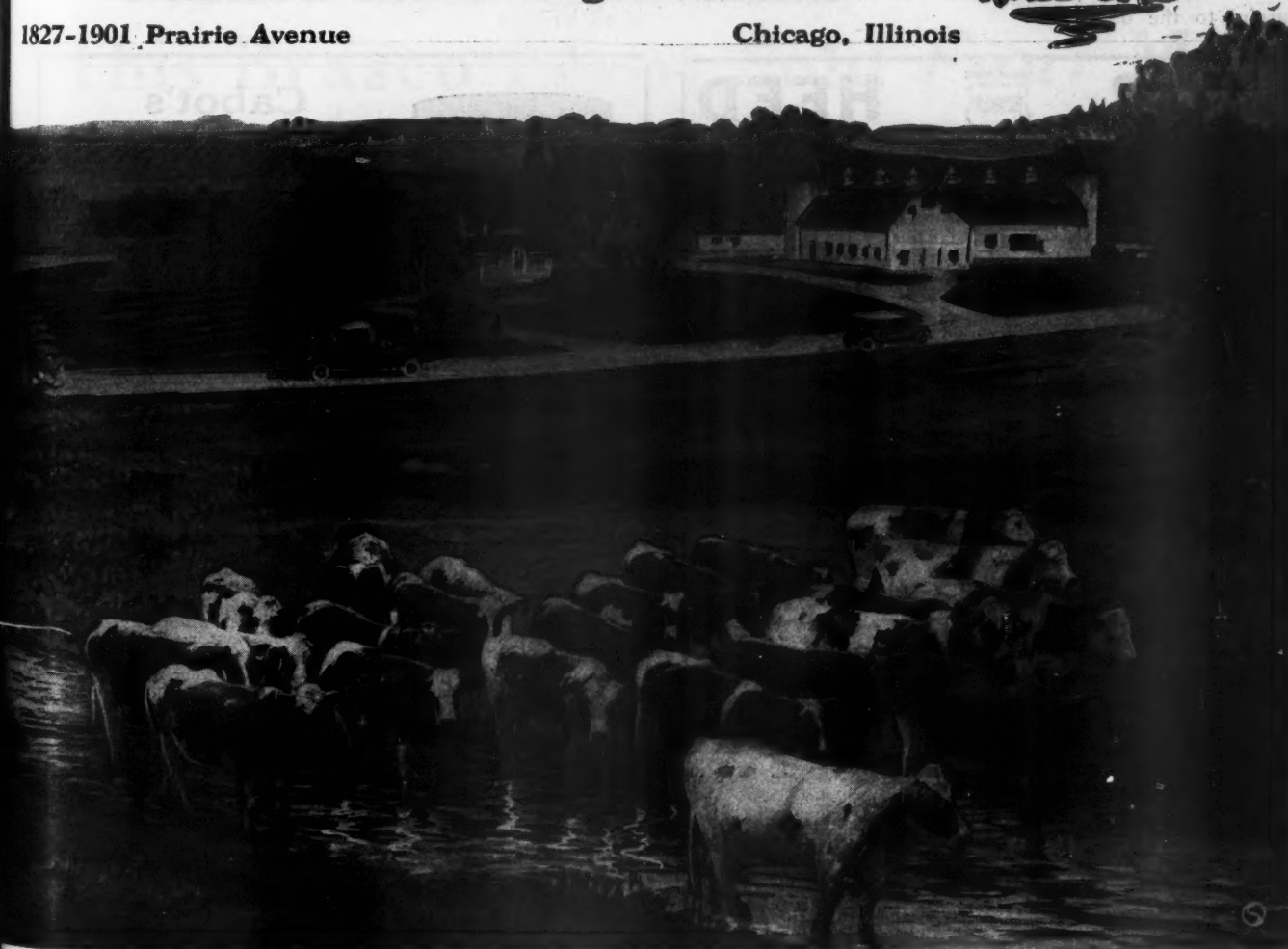
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Write today to Radford Land Organization asking for information about land for sale. Tell us what sort of property you want, where located and the size place desired. Land owners send descriptions of your property in as great detail as possible. These lands will be listed **FREE**.

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Reproduction of Painting in Full Colors in the Office of the Radford Land Organization.

Books, Bulletins and Catalogs for You

THE literature and publications listed here are available to readers of the American Builder. They may be obtained from the firms mentioned and will be forwarded without cost except where a price is noted.

Knapp Sanitary Metal Trim is described in detail in an attractively bound loose leaf booklet issued by the Knapp Brothers Manufacturing Company, 2419 West Fourteenth Street, Chicago, Ill. The publication, which is addressed to architects, engineers and builders, describes in detail the metal trim products of the company, which include flush metal window trim, metal window stools, heads and jambs, metal cove base, flush metal picture mould, metal door casings and metal corner bead. These products are illustrated by scale drawings showing methods of installation and photographs of finished installations. Suggested architects' specifications are given also.

Snow White Steel Cabinets and Mirrors are illustrated in attractive form in a booklet recently issued by the Hess Warming & Ventilating Company, 1205 Tacoma Building, Chicago, Ill., the makers of the equipment. The various types of steel medical cabinets and bathroom lockers, as well as the lavatory mirrors with the possibilities of their installations, are shown and prices quoted.

"Brass Pipe for Water Service," publication B-1, second edition, of the American Brass Company, Waterbury, Conn., is a collection of valuable data for architects, engineers and plumbing contractors which gives a comprehensive discussion of the effect of corrosion on various kinds of pipe and on the qualifications of Anaconda brass pipe for permanent service with comparative cost estimates and suggestions for installing. A section devoted to instructions as to how to install and handle brass pipe should be especially useful to the builder

"One Hundred Per Cent Heat from Any Fuel" is the title given a broadcast issued by the Hess Warming and Ventilating Company, 1207-1227 South Western Avenue, Chicago, Ill. In the publication the advantages of the Hess furnaces are outlined, and the equipment is illustrated and described. The free plan service of the Hess company, which, without charge, gives complete heating data from floor plans of residences, is outlined. This information is given when a "question and informata data form," supplied by the company, on request, is filled out.

"Handy Wiring Tables and Illuminating Data" is published by Westinghouse Electric & Manufacturing Co., George Cutter Works, South Bend, Ind. It is announced as a booklet of practical information for those interested in the more efficient use of electricity for lighting, power and industrial purposes. The book is a mine of practical information for those confronted with wiring problems and is filled with valuable tables and information.

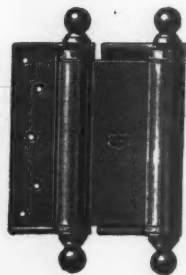
"White" Efficiency Homes is the title of an attractive book of home plans published by the White Door Bed Company, 130 North Wells street, Chicago, Ill. The book, it is announced, is intended for home builders, architects, realtors and others interested in reducing materially the building cost of the home without reducing its comfort. It is designed to show how the use of White Door Beds and space-saving devices increases the convenience and efficiency of the home and reduces housework by utilizing space to the greatest advantage. A number of attractive exteriors and plans for homes are shown, ranging from modest three-room bungalows to larger cottages and twin apartment buildings. The plans are presented in a very attractive manner and are well worth the consideration of all builders.

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HEED

BUY
THE BEST
HARDWARE
FOR
HARD-WEAR



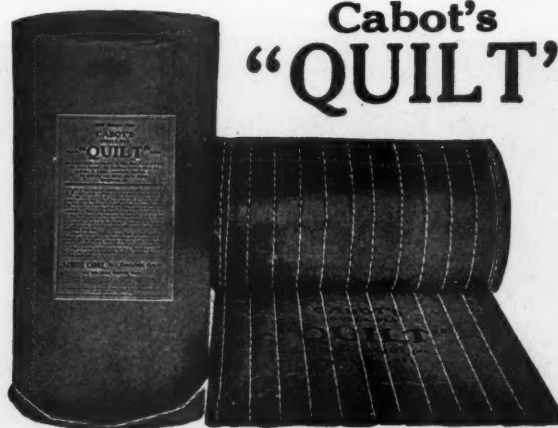
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**Makes Your House Like a Thermos Bottle
Keeps It Warm in Winter and Cool in Summer by Insulation**

CABOT'S "QUILT" insulates the whole house. It saves the heat in winter—saves from a third to a half of your coal bill. It keeps the heat out in summer, making the house cooler.

Quilt lasts as long as the house. It saves your money and keeps you comfortable all the time. No investment that you can make will earn such dividends as Quilt in cutting down coal and doctor's bills and making the house cozy and healthful.

Quilt is not a mere felt or paper. One layer has insulating power equal to twenty-eight layers of common building paper.

Sample of Quilt sent free

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342 Madison Ave., New York 24 West Kinzie St., Chicago

*Cabot's Creosote Stains, Conservo Wood Preservative,
Stucco and Brick Stains*



This Brasco Front Sold *Four* More

Here's an example of how Brasco creates business for builders. This store, in one of the most prominent downtown locations in St. Louis, was remodeled with a new Brasco Front. Soon after, one merchant next door and three more across the street also put in Brasco Fronts—the direct result of the first installation.

This is an every-day occurrence with Brasco distributors. All over the country, in small towns as well as in large cities, builders and contractors are getting these extra contracts with practically no effort.

They find Brasco Fronts easy to sell because architects, owners and merchants recognize the superiority of the construction—the hand-

some design, built-in quality, rugged strength, ventilation and drainage features and the extra wide flexible grip on the glass that insures safety.

Brasco is adapted to any type of store or building. It is easy to install. Only standard lumber is needed, less of it and less labor than any other type of front requires. This makes for economy all along the line.

Send in the coupon today for catalog and our new book of designs. With the many attractive layouts shown, even builders inexperienced in store front work can get this desirable business. The coupon will bring you complete information.

Brasco Manufacturing Company

5029 South Wabash Ave., Chicago, Ill.

Brasco
COPPER STORE FRONTS

Brasco Mfg. Co.,
5029 S. Wabash Ave., Chicago

AB924

Send me the Brasco catalog and new portfolio of store front designs.

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WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN BUILDER

Books, Bulletins and Catalogs for You

THE literature and publications listed here are available to readers of the American Builder. They may be obtained from the firms mentioned and will be forwarded without cost except where a price is noted.

Valuable Painting Data is presented in "Professional Bulletins for Architects and Engineers on the Subject of Painting and Finishing," a series of publications issued by the Department of Architectural Service of the Sherwin-Williams Company, Cleveland, Ohio. To date six bulletins, comprising 80 pages, have been issued, dealing with the following subjects: "Painting of Concrete and Stucco Surfaces"; "Enamel Finish on Interior and Exterior Surfaces"; "Painting and Decorating of Interior Walls"; "Protective Finish for Metal Surfaces"; "Finishing of Interior Floors"; "Staining and Varnishing of Wood Trim." The text is authoritative and informing and is illustrated with a wealth of beautiful halftones showing many types of fine buildings and their exterior and interior finish.

"Everlastingly Beautiful"—A series of 48 photogravures from photographs of actual buildings showing architectural designs in brick, is being sent out by the Acme Brick Company, of Fort Worth, Texas, to anyone interested in southern brick. These photogravures illustrate the use of their different colors and textures of brick in fine residential and other buildings and include many specimens of fine architecture. The prints are enclosed in a special heavy file envelop, with tab, in convenient shape for the files of architects and builders. One commendable detail of these photogravures is the complete description of each color scheme in the blending of the brick and that credit is given, in each case, to both architect and builder.

Concrete Products Machinery and Equipment is described

and listed in the latest catalog of the Besser Sales Company, Monadnock Building, Chicago. Among the products of the company listed in the catalog at hand, semi-automatic and automatic block machines, hand semi-automatic and automatic tile machines, semi-automatic and automatic brick machines, concrete mixers, partition tile machines, drain tile machines, power tampers and cement silo stave machines. A number of testimonials as to the quality of the Besser machinery and the quality of the concrete products of the machine also are given as are a number of interesting views of concrete products plants.

Progress in Plumbing Equipment is shown in the catalog of the B. Karol & Sons Company, Kedzie and Polk streets, Chicago. The new catalog presents some important new features, among them a new style mixing faucet for lavatories, sinks and laundry tubs. In addition it shows the latest of built-in bath tubs, showers and lavatories.

School House Construction is treated at some length and in a very interesting manner in a recent issue of the "Right Angle" published by the General Fireproofing Company, Youngstown, Ohio. The magazine deals particularly with the necessity for fireproof construction in buildings devoted to educational purposes and contains a wealth of ideas for those faced with the problems of school house design and construction.

Oil Burners for Every Service is the title given by the S. T. Johnson Co., 940 Arlington St., Oakland, Calif., to its Bulletin No. 28-D, which shows the Johnson Rotary Oil Burner applied to a number of uses and shows details of the construction and design of the device. The Johnson burner is shown as applied to steam boilers, hot water heaters, hot air furnaces and a number of other appliances. Diagrams showing construction details of the different types of burners are shown.



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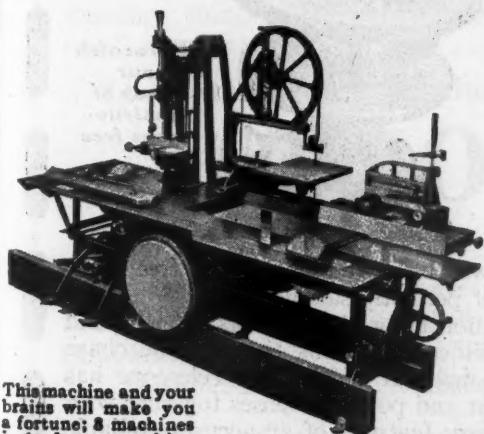
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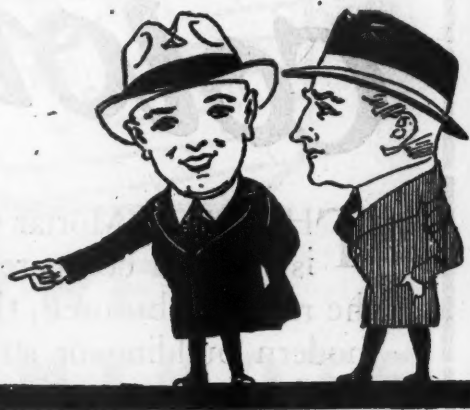
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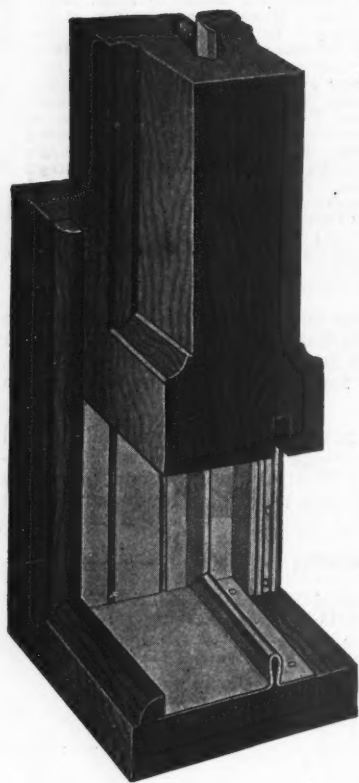
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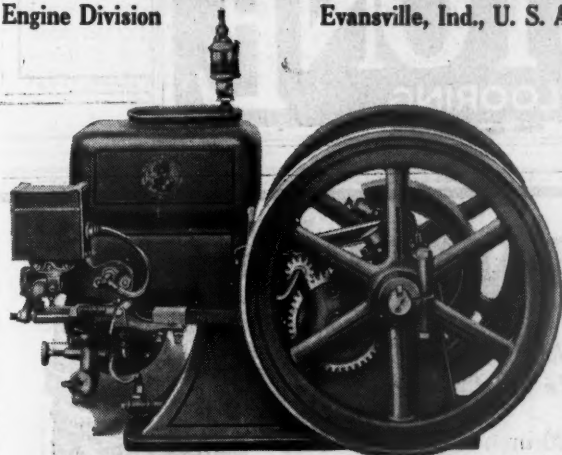
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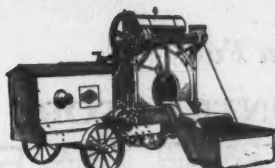
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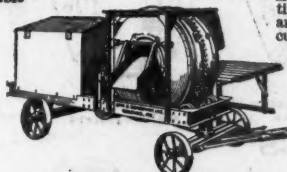
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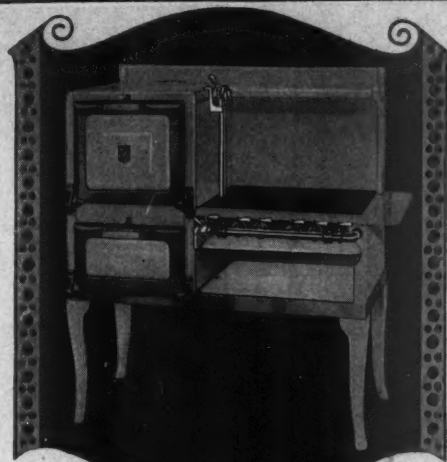
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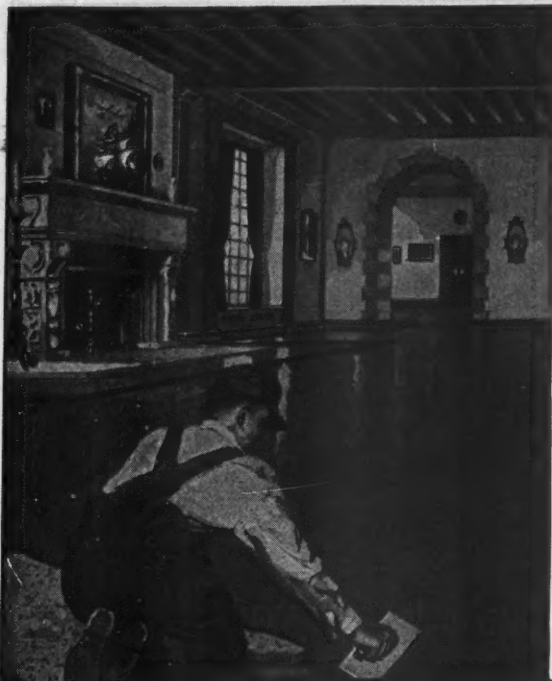
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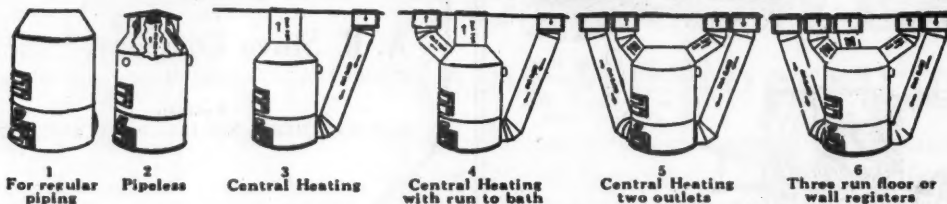
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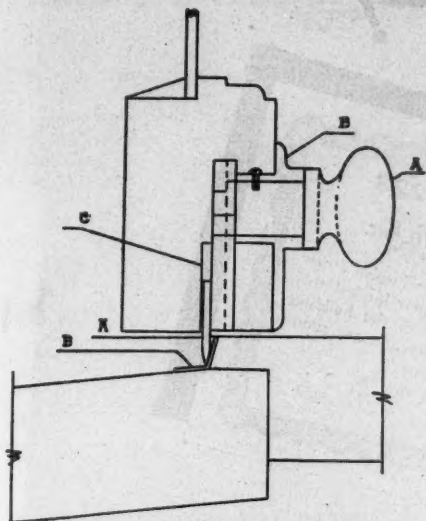
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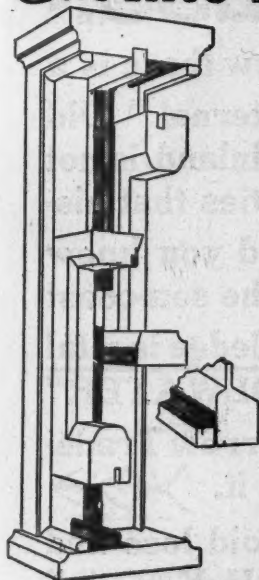
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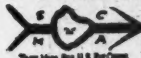
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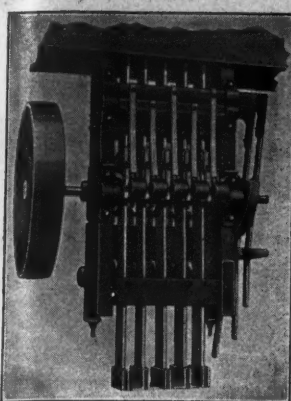
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A friendly Tip on CYPRESS:-

What you want is lumber that "defies decay." You know there is a species of lumber known everywhere as "The Wood Eternal." Did you also know there is a kind of Cypress that grows far inland, is not in a swamp and so has not the same rot-resistant qualities that historically distinguish "Cypress" in your mind? And did you know that the kind you want grows only within 200 miles of the sea-coast and is known as "TIDEWATER" Cypress? This knowledge is vital to your investment. Your insurance of genuine "TIDEWATER" CYPRESS, the actual "Wood Eternal," is the Cypress Arrow Trade-mark identifying every lot, board or bundle. This is it.  With this protection you cannot be misled and will avoid loss and disappointment. **"LET YOUR DEALER KNOW YOU KNOW."** He will respect you—and supply you.

Write us if you have any trouble getting the Genuine Identified "Wood Eternal,"
the World's Standard Lumber for all Exterior Uses.

SOUTHERN CYPRESS MANUFACTURERS' ASSOCIATION
1216 POYDRAS BUILDING, NEW ORLEANS, LA., or
1216 GRAHAM BUILDING, JACKSONVILLE, FLA.



Two New Ideal Leaders!

Ideal "Fit-All" Tamper Ideal Face-Up Ten Brick Machine

Both manufactured according to the established Ideal standard of quality, dependability, efficiency and economy.



Ideal "Fit-All" Tamper

Operates over any machine; face-down or stripper, two or three core, regardless of make. For the smaller operator—requires modest investment. Why tamp by hand?

Write today for Circular

Ideal Face-Up Ten Brick Machine

Adapted for the manufacture of common concrete brick or the popular tapestry brick. Thus it gives you full advantage of "two way" market. Quality! Service! Price!

Write today for Circular

BUILT LIKE A BATTLESHIP
The Ideal Products Plant Mixer. Write for Literature

IDEAL

THE IDEAL CONCRETE MACHINERY CO.
5014 SPRING GROVE AVE. CINCINNATI, OHIO

TRADE MARK  REG. U.S. PAT. OFF.

How Many Trips to the Mill Today?

It's the trips to and from the mill and waiting in between that boosts the cost of milling. Putting the Famous Jr. "30" on the job turns all the loss into profits.

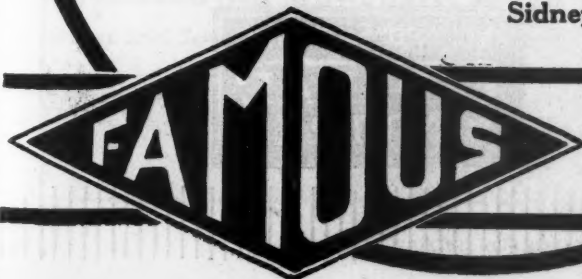
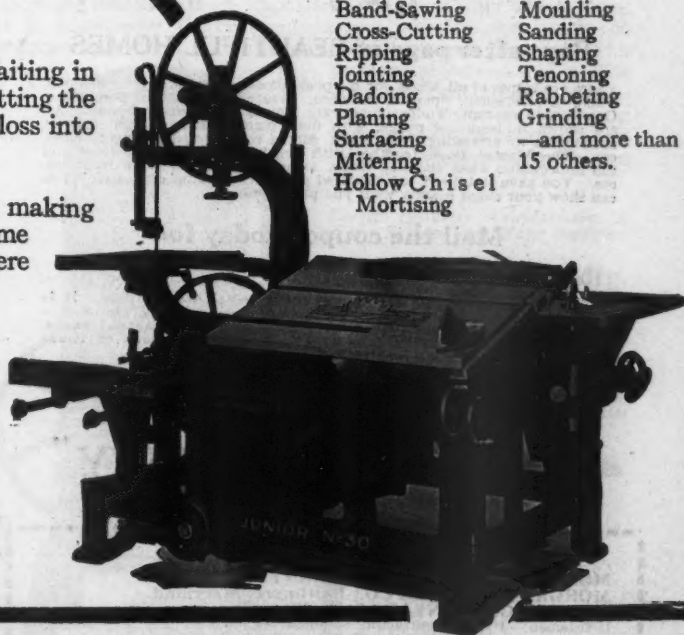
Does any job from cutting rough lumber to making finest trim. Will handle five operations at same time without interference. Hundreds of shops use it where space is at a premium and production important.

If you can use a "Famous Jr. 30" in your business, you're already paying for it! Why not get the benefit of its service? Write for detailed and illustrated bulletins on this and other Famous Woodworkers. Write NOW! Address Dept. 109.

The Sidney Machine Tool Co.
Sidney, Ohio

You Can Do Every Possible Woodworking Operation on This Machine!

Band-Sawing	Moulding
Cross-Cutting	Sanding
Ripping	Shaping
Jointing	Tenoning
Dadoing	Rabbeting
Planing	Grinding
Surfacing	—and more than
Mitering	15 others.
Hollow Chisel	
Mortising	



Woodworkers

Thousands Praise This Great Book for HOME BUILDERS



How it ends groping in the dark—helps
avoid costly building mistakes

From all sections come enthusiastic letters praising "Building With Assurance"—the big, fine 440-page Master Book for Home Builders. They say, for example:

- "The book is a revelation."
- "In it I found my ideal home."
- "A text book of home design."
- "A true home builder's guide."
- "Wonderful building information."
- "Solves the puzzling questions."
- "Wouldn't sell it for \$50."

Over 15,000 architects, contractors and dealers endorse and use it for daily reference. Many call it the most valuable of all home building books.

"Building With Assurance"
is the result of years of experience.

This great book has been prepared expressly for home builders. Within its covers has been placed specific, practical building plans, not extravagant generalities. It contains ideas that have been proved right by years of experience—ideas that you can actually use to help you reduce home building waste, cut cost, save time, eliminate experimenting, avoid mistakes and save money.

*There is no
added cost for
"Morgan-Quality"*

Page after page of BEAUTIFUL HOMES

There are homes of all kinds, for all pocketbooks from \$3,000 to \$50,000. There are French, Spanish, Modern, Western and other Bungalows; Georgian, Victorian, Tudor, American, Colonial and other houses. All are shown in beautiful colors, with floor plans. You get the help of authorities in arranging living room, dining room, breakfast nook, halls, etc. The Master Book together with the price supplement, gives you full information when choosing doors, sashes, stairways built-in furniture, etc. You have stabilized, standardized prices for making estimates. You can show your client exactly what you plan to use.

Mail the coupon today for
prospectus

"Building With Assurance" is not for general distribution. It is for contractors and builders. Our prospectus tells all about it—shows beautiful homes with floor plans, reproduces actual pages, letters from readers, etc. The prospectus is gladly sent to those who mail the coupon.

MORGAN WOODWORK ORGANIZATION

"MORGAN-QUALITY"
STANDARDIZED WOODWORK

(176)

Address nearest office, Dept. T-9

MORGAN SASH & DOOR COMPANY, Chicago, Ill.
MORGAN MILLWORK CO., Baltimore, Maryland
MORGAN COMPANY, Oshkosh, Wisconsin

Gentlemen:—I am a contractor, so please send me at once copy of your beautiful prospectus, which describes "Building with Assurance."

Name.....

Address.....

Town..... State.....

The Supreme Judges of Tire Value Chose Federals

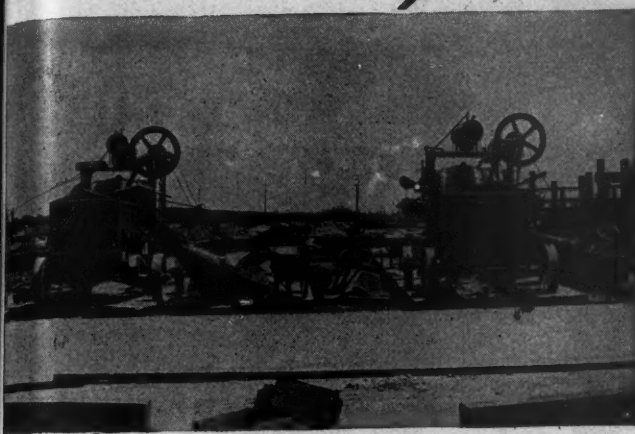
No buyer of tires takes any more care to check tire results than the fleet operator. His modern cost accounting methods have taken all the guess out of tire performance. He is the supreme judge of tire performance.

When tires are bought on results alone Federal Blue Pennant Truck Cords are chosen as standard equipment. Fleet operators in many sections of the country show by comparative figures that Federals with their broad non-skid tread and extra heavy side walls give them the most all around, care free, service they can possibly buy.

Whether you run one truck or fifty you can't afford to overlook the judgment of these large tire buyers whose impartial tests show Federals save money.

There Is a Federal Authorized
Sales Agency Near You





The SMITH 7-S

HERE is the non-tilting mixer *par-excellence* in the construction field. It can be used with equal efficiency on large or small jobs—its high standard of mechanical construction permitting dependable maximum production and its weight and size allowing great ease in portability.

It embodies all the fine features which have been winning fame for Smith Mixers during the last quarter century—is the ideal mixer for any job.

It is equipped with a new and simplified discharge operating mechanism; is furnished with steel skids, trucks or rubber-tired wheels; with gasoline, steam or electric power; with water tank, power loader, or low-charge hopper and platform.

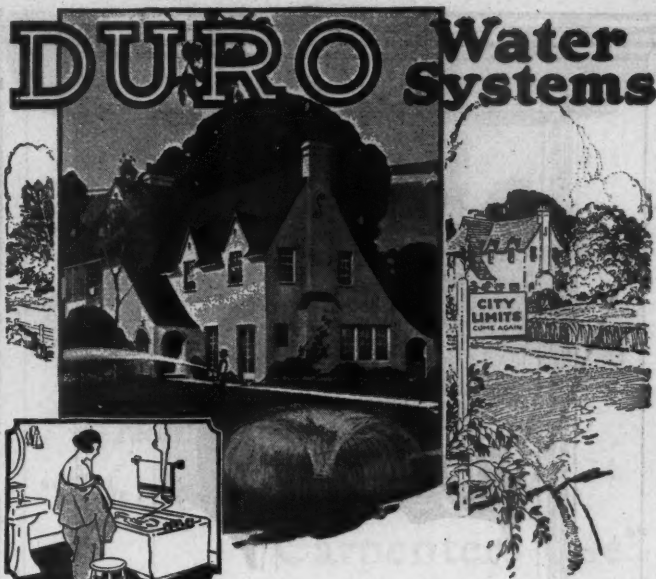
It is a one-bag mixer with a mixed batch capacity of 7 cu. ft. that gives 90 to 100 yds. as an easy day's output.

THE T. L. SMITH COMPANY

1193-32nd St., Milwaukee, Wis.

Sales Offices and Service Stations in All Principal Cities

SMITH MIXERS



Duro-equipped Homes are Easier to Sell or Rent

WHY? Because Duro-equipped homes are more comfortable and more convenient to live in. Any residence or apartment building supplied with the greatest convenience the most modern home can have—fresh water under pressure at all times, at the turn of a faucet—is indeed easier to sell or to rent.

Vertitank System

Pictured at the left is the new Duro Vertitank Unit System, built in three capacities—120, 180, and 360 gallons per hour.

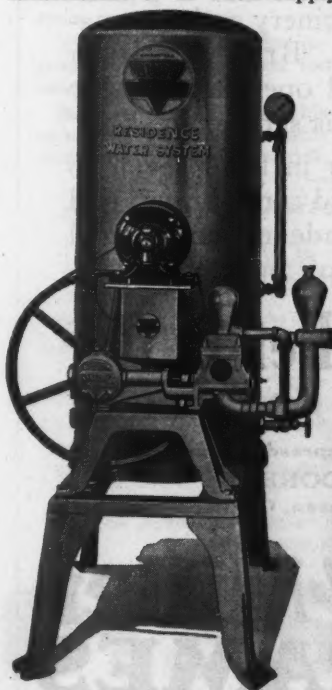
The upright tank with its unusually large capacity between operating pressures is an important feature of this new system. It is admittedly the best engineering practice and bears the endorsement of all water supply engineers and plumbers who have examined and sold it. The Vertitank Unit System is compact and powerful—taking up very little space—starting and stopping without any attention whatever.

Largest exclusive manufacturers of
Water Systems and Water Softeners

The Duro Pump & Mfg. Company

109 Monument Avenue
Dayton, Ohio

Send in the coupon NOW for booklets giving valuable pointers on water systems and water softeners



The Duro Pump & Mfg. Co.
109 Monument Ave.,
Dayton, O.

Please send me booklets checked as follows: [] Duro Data Book, [] "How to Choose a Water System," [] "How to Select a Water Softener."

Name.....

Address.....

Business.....



Bradley-Miller Frames **Fit Better and Last Longer**

Because they are made of genuine white pine by specialists who enjoy the advantages of accurate machinery and automatic measuring devices, Bradley-Miller Frames fit snugly and operate smoothly after years of strenuous service.

Easily nailed together in from seven to ten minutes, they speed construction and reduce labor costs. Made in standardized sizes to fit every window opening.

Bradley-Miller & Co.

BAY CITY MICHIGAN

Eastern Frame Representative:

A. D. MOORE

P. O. Box 867, New Haven, Connecticut

Bradley-Miller
All White Pine **FRAMES**



Owner: DR. B. S. ROTHWELL,
Cleveland.
Architect: MUNROE WALKER
COPPER, JR., Cleveland.

Who Wouldn't Bask Before This Man's Fireplace?

WHO wouldn't revel in its quarry-like ruggedness; in the ancient crane whereon the pot calls the kettle black? Who would not quaff from its ample steins while he lived again the woodland hours whose trophies hang before him.

Best of all is its unstinted warmth and cheer; its freedom from smoke perplexities—made possible by the Donley Damper.

The Donley Damper provides a smooth metal throat that draws off gases and smoke, prevents smoking and soot smudges, assures perfect draft control and a warm, economical fire.

Make your fireplace practical as well as beautiful by installing the Donley Damper. Ask your dealer to show you one. Then try it out in your next fireplace.

If you are building fireplaces, you need the Donley Book of Fireplaces, containing designs and construction plans. It tells of Donley Damper superiority and shows the Donley Fire Basket and Ash Dumps. Donley Devices and Building Accessories are described in our catalog. Send today for either of these books.

The Donley Brothers Co.

13910 Miles Ave.



Cleveland, Ohio



*Not over 2%
additional for Redwood
permanence*



*Residence at Des Moines,
Ia. Redwood Colonial
siding, painted white.*

GETTING down to figures, you'll find Redwood available for even moderate priced homes and buildings. It only increases cost of construction about two per cent., and it adds more than this to the selling price and investment value.

On a \$10,000 house, lumber and millwork items represent \$1,500 to \$2,000. Agreeing that Redwood shingles and siding, porch columns and trim, foundation timbers and mudsills, balusters and railings, cornices, window and door frames may cost 10 per cent. more, this more permanent material adds only \$200 to the cost of the building.

Grade for grade, Redwood often costs no more than ordinary woods because its greater freedom from knots and common defects cuts down the loss from waste to an extremely low figure.

Exposed to moisture and climate, Redwood is protected by a *natural* preservative which permeates the fibre during growth and prevents fungus decay and damage by boring worms and insects. Build with Redwood and you build for beauty, permanence and value.

Through our Chicago or New York offices and warehouses, from wholesale lumber dealers in all principal centers or from local lumber yards, you can get prompt delivery in any quantities required. For detailed information, write our nearest office. Ask for our Redwood lumber and millwork lists.

The Pacific Lumber Co.
Redwood

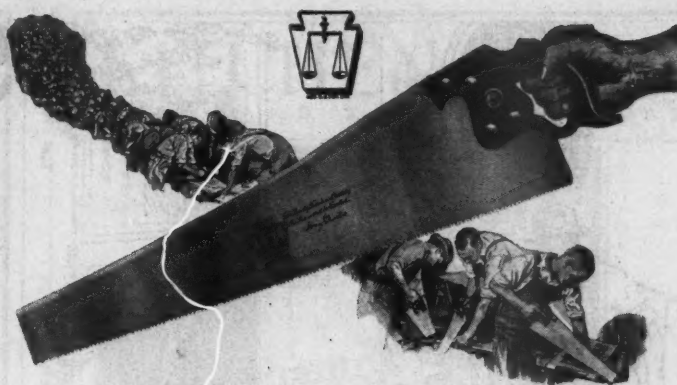
CHICAGO
3066 McCormick Bldg.
382 S. Michigan Ave.

NEW YORK CITY
933 Pershing S. Bldg.
100 E. 42nd St.

SAN FRANCISCO
Robert Dollar Bldg.
311 California St.

LOS ANGELES
Central Bldg.
6th & Main Sts.

*The Largest Manufacturers and Distributors of
California Redwood*



How Henry Disston Made "The Saw Most Carpenters Use"

TODAY or tomorrow, perhaps, you will buy a saw. Before you buy any saw, you will want to know the story of "The Saw Most Carpenters Use."

In 1840 Henry Disston opened his own saw shop, in a cellar in Philadelphia. Carpenters then wanted foreign-made saws. Henry Disston knew he had to make saws better than any ever made before.

He himself fired his furnace, tempered his saws, smithed, ground, set and filed them.

Around him he gathered men and trained them in his own methods. First he made saws with his own hands; then he made saw makers.

Carpenters—the men who make their living by using saws—told one another to get a saw with Disston's name on it. Before long, even Europe was sending to Disston for saws.

Finer workmanship was impossible, but better steel for saws was possible.

So Disston in 1855 made his own steel—the first crucible saw steel ever made in America.

And Disston Saws of Disston steel won the world. The Disston Hand Saw is known everywhere as "The Saw Most Carpenters Use."

Henry Disston's spirit lives on in the Disston Saw Works.

First his sons and then his grandsons served apprenticeships in the shops. They worked side by side with the sons and grandsons of the men who learned saw-making from Henry Disston himself.

The Disstons make saws today after the ideals set by Henry Disston. As long as there is a Disston left, the Disston standard will be maintained.

For the Disston Hand Saw that you buy must run true, cut clean and fast, and stay sharp. It must be made to suit your hand, and balanced right to aid your arm. It must give you a lifetime of faithful service.

Ask Disston. Whatever you saw, in wood, metal, bone, fibre, or other material, Disston has the saws for you.

Ask us about them.

HENRY DISSTON & SONS, Inc.
Philadelphia, U. S. A.

Among many Disston favorites are these:



Disston D-23. For those who want a narrow blade, 1 1/2" wide at point, 6 1/2" at butt.



Disston D-115. The finest saw that Disston makes. For those who want the utmost in finish and service.



Disston D-8. The world's standard for all-around work.



Disston No. 12. Extra tempered. Ground one gauge thinner, for special clearance. A favorite straight-back, full-width saw.

*Your hardware dealer has the right Disston Saw
for your special work.*

DISSTON



Buy for Tomorrow as Well as Today

A COAL CHUTE must be attractive as well as substantial, but it must be built to withstand constant usage year after year. Gabriel Coal Chutes combine the attractive appearance which blends with any style architecture and finish, together with high quality construction.

Gabriels are made of rolled steel, not pressed metal nor cast iron. They have electrically welded joints, unbreakable hinges.

The builder who buys for tomorrow as well as today will find the Gabriel Coal Chute the most economical and satisfactory in the end.

Send the coupon for further valuable information.

GABRIEL STEEL COMPANY

Bellevue Avenue

Detroit, Michigan

GABRIEL

ROLLED STEEL
COAL CHUTE

COUPON

Please send prices and information on Gabriel Coal Chutes.

Name _____

Address _____

A. B. 9-24

Save Your Strength



EXCESS baggage may be all right in the baggage car, but you don't want it in your tool chest. Get a Starrett Combination Set. Here's a Rule, Square, Level and Plumb, Marking Gage with Scratch Awl, Height Gage, Depth Gage, Center Head, Bevel Protractor for finding Angles, Miter and a whole set of Try Squares. Light and compact, taking up but little room in the chest or on the bench. Handy to use, accurate and built to last a lifetime.

Get a Starrett Combination Set and save your strength, save your time, save your temper, AND SAVE YOUR MONEY.. Several different styles and attachments to choose from. Priced right. Write for Catalog No. 23 "6" for complete description of Starrett Builders' Tools.

THE L. S. STARRETT CO.

World's Greatest Toolmakers

Manufacturers of Hacksaws Unexcelled
ATHOL, MASS.



Starrett Combination Square with Protractor and Center Head



7027

Starrett Tools

SLATE ROOFING

The rich, dark blue color and the exceptional unfading qualities of the slate produced from the famous slate veins in Pennsylvania known as the

Genuine Washington



have built up a reputation that is unequalled by any other Roofing Slate.

Genuine Washington "Big Bed" Slate is specified and accepted by the U. S. Government for its excellent quality and uniformity of color.

Produced at the quarries of the Amalgamated Slate Quarries Company and sold exclusively by



VENDOR SLATE CO.
INCORPORATED
EASTON, PENNSYLVANIA



New York Office, 101 Park Ave.
Chicago Office, Marquette Building
Columbus (Ohio) Office, 500 Atlas Bldg.
St. Louis Warehouse, 1548 S. Vandeventer Ave.
Pittsburgh Warehouse, 6600 Hamilton Ave.
Hartford (Conn.) Office, American Industrial Bldg.
Washington, D. C., Office, New York Ave. and
14th St., N. W.

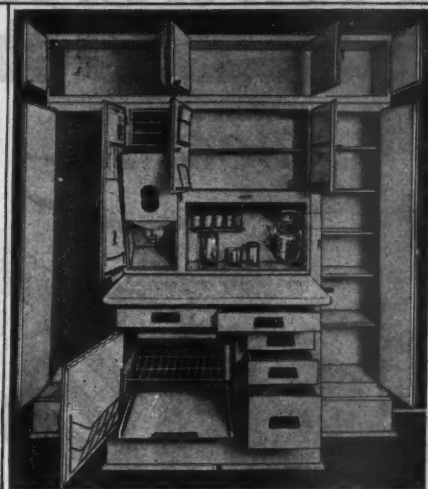
and at

Detroit	Los Angeles	Cincinnati
Kansas City	Waco (Texas)	London, England

Concentration Yards and Warehouse for Vermont
Colored Slates, Middle Granville, N. Y., and
Poultney, Vt.

KITCHEN MAID

STANDARD KITCHEN UNITS



"Good Business" for Builders and their Clients

With Kitchen Maid Standard Units you benefit all along the line. These units save space in planning kitchens; they make kitchens more attractive to women; they help rent or sell property; they even keep down construction costs, since they cost no more than old-fashioned cupboards. Read the list below—remember they're standardized and built by cabinet-makers—the builders of the famous Kitchen Maid Cabinet. Send the coupon for full facts, dimensional drawings, and special prices to builders.

WASMUTH-ENDICOTT CO.,
1390 Snowden Street, Andrews, Indiana.
Please send me information regarding the units checked:
☐ PULMANOOK, consisting of table and 4 seats folding into wall. For alcove ☐; for any kitchen corner ☐
☐ COMBINATION IX, consisting of cabinet, broom closet, dish closet and linen cupboards to set against wall.
☐ IN-A-WALL IRONING BOARD, folding into wall when not in use.
☐ BROOM CLOSET, to set in any kitchen ☐; to be built into wall ☐
☐ DISH CLOSETS, LINEN CUPBOARDS, to be set in ☐; to be built in ☐
☐ IN-A-WALL TELEPHONE SEAT.
☐ KITCHEN MAID KITCHEN CABINET.

Name.....
Address.....
City..... State.....

"Let the Kitchen Maid be your Kitchen Aid"

KITCHEN MAID
STANDARD UNIT
SYSTEMS

AMERICAN SASH CHAIN



Used in



A list of the buildings in which American Sash Chain is used would be virtually a directory of the country's prominent buildings.

American Sash Chain is made in the five sizes, Nos. 60, 80, 100, 130 and 250, to correspond with the weights of double hung sash for which they are intended.

AMERICAN CHAIN COMPANY

Incorporated

BRIDGEPORT . . . CONNECTICUT

In Canada: Dominion Chain Co., Ltd., Niagara Falls, Ont.

District Sales Offices:

Boston, Chicago, New York, Philadelphia, Pittsburgh, San Francisco

Largest Manufacturers of Welded and Weldless Chains and Makers of the Famous WEED Automobile Accessories.



TROUBLE SAVER

Steel Scaffolding

*Saves time, labor
and material*

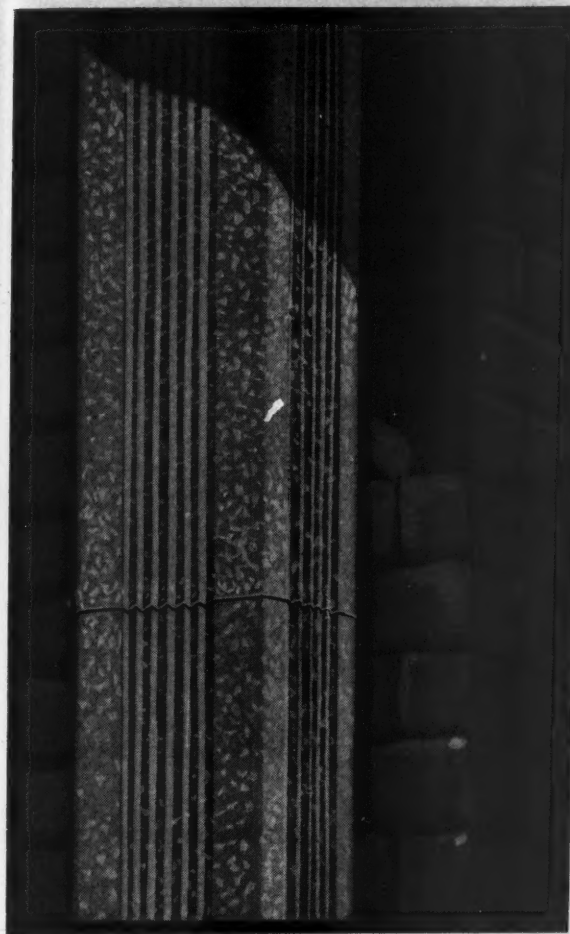
The first cost of TROUBLE SAVER Steel Scaffolding is the last cost. Good for a life-time of service. Nothing on them to break or get out of order. Fold conveniently for cartage or storage. Each one will support a ton. Leaves ground free from obstructions, permitting grading while building is under construction.

MONEY BACK GUARANTEE

Write today for full information.

STEEL SCAFFOLDING COMPANY

EVANSVILLE, INDIANA



Seams, edges and surfaces alike are protected by a heavy coating of PURE ZINC

WHEELING Hand Dipped Conductor Pipe

Made of Copper Bearing Steel, Terne Coated, Wheeling Hand Dipped Conductor Pipe is Hand Dipped in Zinc *after forming*. This Permanently seals all seams and edges, making a heavy, uniform rust-proof coating, which will assure long, satisfying service in use.

**Wheeling
Corrugating Company**
Wheeling, W. Va.

New York	Kansas City	Chicago
Philadelphia	Richmond	St. Louis
Chattanooga	Minneapolis	

He Had Nine Gallons Left— All Clear Profit

Below is a letter recently received which proves our claim that every gallon of Elastikote will cover more surface than any other exterior paint:

Canal Fulton, Ohio
June 22, 1924.

The Tropical Paint & Oil Co.,
Cleveland, Ohio.

Dear Sirs:

I was greatly impressed with the covering capacity of your Light Green Elastikote, which we used on the last job in Massillon, Ohio. Actual measurements of the house clearly indicated the amount of material required would total 16 or 18 gallons.

The owner ordered 16 gallons and when the work was finished we had 9 gallons left, having used 1 1/4 gallons of oil in the first coat.

Taking the above into consideration and the fact that I am running a gang of four men, I shall be pleased to receive your best quotations on your entire line.

Respectfully,
(Signed) Jas. H. McGee

Elastikote Will Make Money for You

Elastikote costs less per square foot of surface covered than any other reliable exterior paint that you can buy. That is why you will make more profit on the jobs on which you use Elastikote.

We sell direct to Building Contractors. Send the coupon for complete information and prices on Elastikote.

The Tropical Paint & Oil Co.

1232-1274 West 70th Street
Cleveland, Ohio

SEND THIS COUPON

For more facts about Elastikote.

The Tropical Paint & Oil Co.,
1232-1274 West 70th St.,
Cleveland, Ohio

Please send me letters from users, illustrated color card, circular and Building Contractors' prices on Elastikote.

Am also interested in paints for.....

Name

Street Number

City..... State.....

WHAT DO SKYLIGHTS and VENTILATORS MEAN TO YOU?

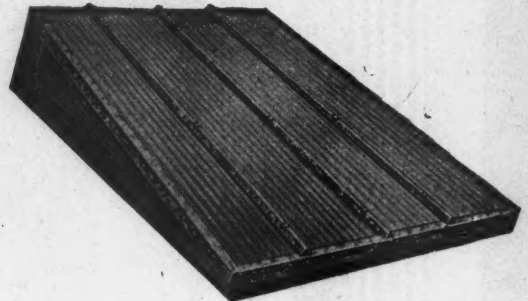
Most contractors (especially the successful ones) use great care in selecting the skylights and ventilators.

If these parts fail—its the contractor who is the "goat"—he gets the blame. Consequently skylights and ventilators that are too flimsy for heavy duty and hard useage are usually "passed up" by the thinking builder.

Willis products are universally used and are certainly most popular with the building trade. Ask for our latest descriptive literature.



These side sashes are operated singly or in batteries. The sashes are pivoted and very easily operated.



This style is also made as a continuous skylight for factory buildings.

WILLIS MANUFACTURING CO.
GALESBURG, ILL.

Are you familiar with this type of window

Made possible by Carrier's Quadrant Adjuster. For use in public buildings, schools, hospitals or residences where maximum ventilation, convenience and artistic effect are desirable.

Advantageous features of this type of window are—

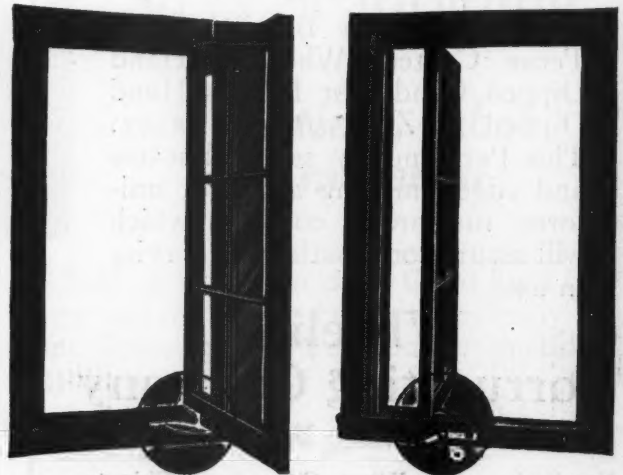
- 1—Not necessary to move screens to open or close windows.
- 2—Window is automatically locked in any position.
- 3—There are no fasteners or hinges required.
- 4—Eliminates any possibility of rattling or sagging.
- 5—Both sides of window easily cleaned from within the room.
- 6—Quickly and easily installed at a low cost.

Write for our Architectural Leaflet which contains detailed drawings and specifications

Sweets and Architects' Samples
Corporations, New York



CARRIER ADJUSTER COMPANY
Casement Window Hardware
Jacksonville, Fla.



Looking In—Easily installed on any stock casement sash—Simple in design. Made of rust proof bronze.

Looking out—Operated by worm gear, turned by a small control lever. Cannot stick.

Allith-Prouty

"Ten-Eighty"

for folding-sliding Garage Doors



A TROLLEY swivel door hanger that has created an unusual demand. Installations permit the use of part or all of opening at one time. A weather-proof arrangement with no sagging or binding of doors. The swivel operates on ball bearings, the wheels on roller bearings, and the vertical side rollers insure further ease of operation.

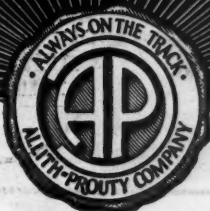
"Ten-Eighty" is scientifically engineered, and carefully manufactured from finest materials—yet its cost is materially lower than you would expect to pay for a hanger that gives so many years of satisfactory service—that possesses so many good features not found in any other.

Ask your favorite hardware source regarding A-P products—or write us.

Catalog upon request.

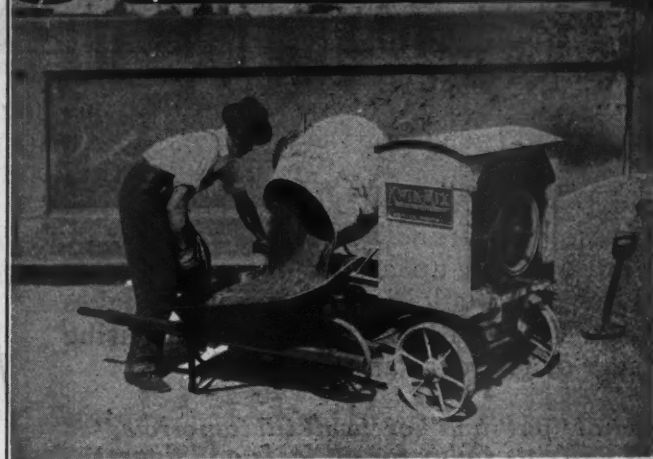
ALLITH-PROUTY COMPANY
DANVILLE, ILLINOIS

*Representative Jobbers Distribute A-P Hardware
Throughout the United States*



"The Sign of Quality"

Kwik-Mix



Note the rapid discharge. This photograph is untouched



Kwik-Mix Trailer
Capacity 3 and 4 cu. ft. mixed.
Comes equipped with pneumatic tires and power.



Kwik-Mix No. 4E
Capacity 4 cu. ft. mixed.
Comes also in 3 and 3½ cu. ft. sizes. Can be had on trucks, without engine.



Kwik-Mix No. 4LH
Capacity 4 cu. ft. mixed. Also furnished in 4½ cu. ft. size. Shipped complete with Engine and Hauling on Trucks with Loader and Builders' Hoist, all ready to run.

One Kwik-Mix Worked on 76 Buildings!

Regularly, from all parts of the country, users of Kwik-Mix Mixers testify to the satisfactory manner in which their machines are performing. For the most part they emphasize the fact that Kwik-Mix Mixers are well named "Kwik-Mix" and make good all that the name implies. This is what Cernak & Novotny, Chicago contractors, say about their mixer:

"The Kwik-Mix Mixer we have sure is a money-maker. We have used it for two seasons on 76 buildings in our subdivision and the grade and quantity of the concrete turned out more than met our expectations."

It is performances such as this that is making the Kwik-Mix line of mixers more popular every day. Kwik-Mix Mixers are made in sizes ranging in capacity from 2 cu. ft. to 7 cu. ft. You can get them with or without engine, loader or hoist-rubber-tired wheels as optional equipment.

Fill in coupon below for our latest catalog.

**KWIK-MIX CONCRETE
MIXER CO.**

Port Washington,
Wisconsin

Kwik-Mix Concrete Mixer Co.
Port Washington,
Wisconsin

Without obligation to me, please mail me your valuable New Kwik-Mix Catalog.

Name.....
Address.....
City..... State.....

The IDEAL ROLL-OVER STRIPPER

is setting a fast pace this season. It is on the job throughout the land, producing A-No. 1 Block and Tile in liberal quantities, making money and friends for the operators.

The Blocks are well-tamped, the Tile run uniformly good; and BOTH find a ready sale and help build up a permanent, profitable business. In addition, the machine makes 4-inch Veneer Blocks two at a time, using cinder or gravel as an aggregate.

Do not "put it off" or "wait till tomorrow," but write us today for all facts and figures—give the Roll-Over a chance to make good for YOU.

Three men do the work of five on this Stripper. The same wood pallet is used for all sizes of Block and Tile. The machine feeds and tamps at same time.



Showing the Ironclad Concrete Products Co., Newport, Ky., using their Ideal Roll-Over Stripper.

IDEAL

THE IDEAL CONCRETE MACHINERY CO.
5014 SPRING GROVE AVE. CINCINNATI, OHIO

TRADE MARK



REG. U.S. PAT. OFF.



These Brackets Will Save You Money

Would you like to cut your expenses? Hundreds of builders are doing it by using Reliable Scaffold Brackets, and so can you.

Read how one progressive builder did it.

Elite Mfg. Company, Ashland, Ohio.

Kennewick, Wash.

Gentlemen: Three years ago I bought a set of 12 Reliable Scaffold Brackets, at a cost of \$55.00. It seems like quite a bit of money to put into staging, but after trying and testing them thoroughly, both my men and myself don't see how we ever got along without them.

The first job I used them on was a big warehouse 50x250, two story, and I assure you these brackets returned to me that \$55.00 and then some on the one job; and they have returned it time after time since then.

Very truly yours,
(Signed) T. C. BROWNE.

Stop building expensive and unsafe wooden scaffolds for every job. Reliable Steel Scaffold Brackets make rigid scaffolds—and stay up until taken down. They save all kinds of time, lumber and money. Give them a trial. There is a Reliable Scaffold Bracket for every kind of job. Pick out the kind you need most and order some today.

The illustrations (from top to bottom) show the Roofing Bracket, Hooktype Bracket, Ladder Bracket, Corner Bracket and Scaffold Bracket.

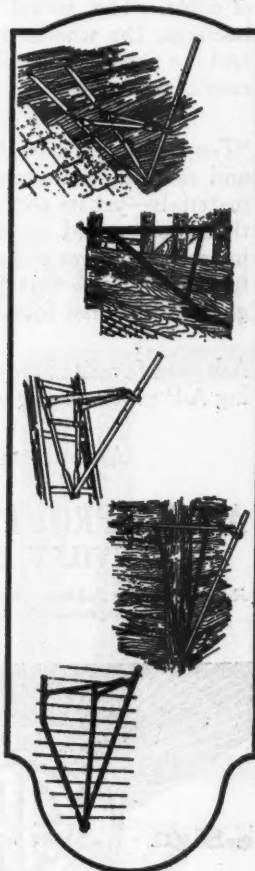
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ELITE MANUFACTURING COMPANY

Ashland, Ohio.

Reliable Scaffold Brackets

No holes to plug after they are removed



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Fisk Non-Skid Solid Tires are making wonderful records for themselves, particularly on the difficult jobs.

It is when competition has forced a cut in your operating costs, when wet, slippery roads demand positive traction, and when the truck's power and strength are forced to the limit, that the superior economy and ability of Fisk Solids are fully appreciated.

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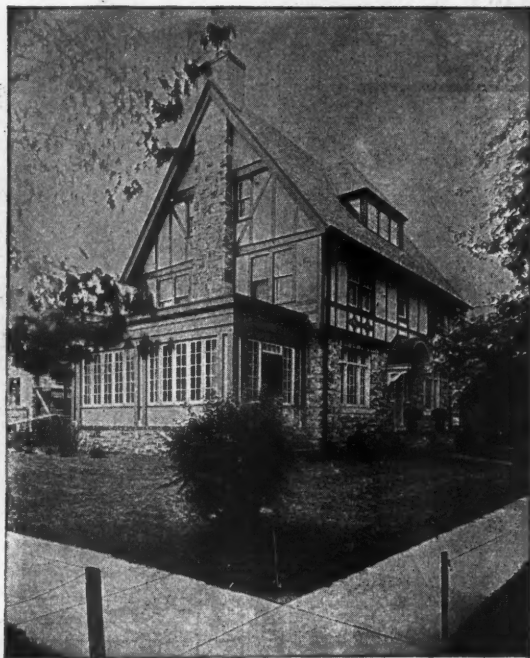
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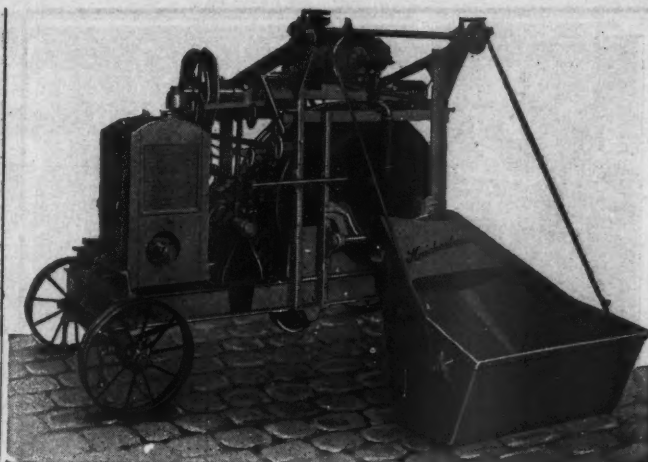
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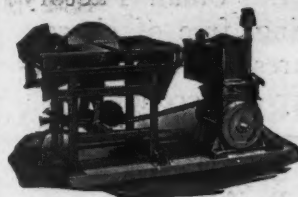
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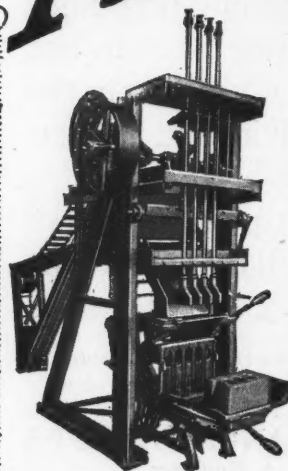
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COMPLETE BRICK, BLOCK AND TILE EQUIPMENT

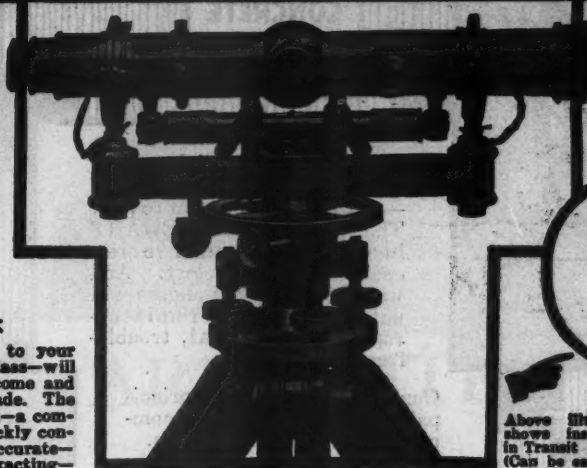
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Without obligation, send me your FREE book, "Be A Bigger Builder". Also full particulars about the Aloe Convertible Level and details of your easy payment plan.

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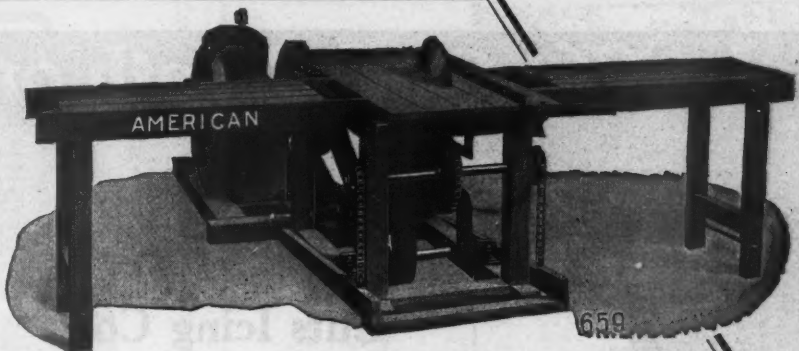
A Reliable Heavy Duty Rip and Cut-off Saw

This rugged machine is designed to rip and cut off heavy timbers such as are used in bridge and dock work, heavy framing and in making concrete forms.

The saw is moved forward by the treadle. The extension tables may be detached and the legs collapsed for convenience in moving.

Guide rails are supplied which may be used either at the rear or front sides of the extensions as convenience dictates.

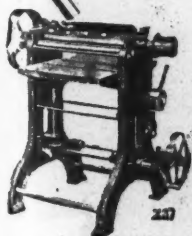
The substantial steel ripping guide is adjustable to any position on the table. A clamp screw holds it in place. The swinging iron



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The design and construction of this rugged machine makes for quick, accurate work and long life under hard conditions of use.

This and other "American" cost cutting, wood-working machines are fully described in our Bulletin No. 80. Write for it.



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EXACTLY the right mixer for your own requirements—at the price you want to pay. That's what the STEWART line of 20 models and five sizes enables you to select. And whichever one you choose will unfailingly deliver uninterrupted, economical, trouble-free service.

Complete stocks in most principal cities. Write today for complete descriptions and prices.

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The Cold Breath of Winter

Cuts Icing Costs When HERRICK Outside Icing Is Installed in Homes

Aside from the fact that **HERRICK OUTSIDE ICING REFRIGERATORS** do away with inconvenience to the housewife and prevent kitchen floors from being tracked with muddy feet and dripping ice; they save ice bills during the cool months by permitting cold air to pass from the outdoors into the ice compartment, serving the same purpose as ice, but with no cost whatever to the home owner.

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ARD-O-SITE Keeps a Permanent Roof Over Your Head

Experience is a costly teacher—this Ardosite owner has profited by the experience of his neighbor—he has wisely roofed for all time. Ardosite Asbestos Shingles when once applied will perfectly protect the home for all time and at surprisingly low first cost, even against any and all semi-permanent roofings.

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In the "Ajax" we offer a Floor Spring Hinge with Ball Bearings at top of the Hinge, away from dust and moisture.

Alignment Adjustment that is easily accessible.

Roller Bearings for the piston, to overcome friction.

Durability, Economy and Appearance, backed by our **REPUTATION**.

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Then you can make the attic useful without taking up valuable space for stairway below. The Bessler slides up into the ceiling when not in use.

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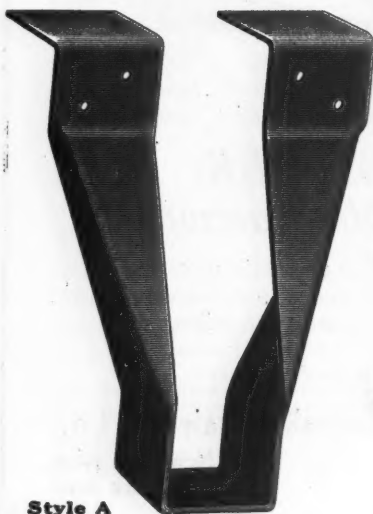
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Also used for heating Offices, Stores, Cottages

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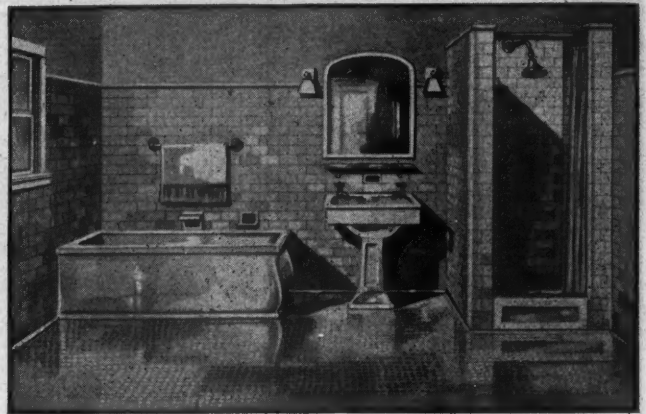
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SAVE MONEY ON YOUR AWNINGS AND SHADES

This device may be easily and quickly installed on your present window shades, as it will enable the user to—

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The final set and strength of the concrete are in no way affected by the use of Solvay. In fact, tests indicate the final strength is increased by its use.

Solvay also waterproofs, strengthens and protects concrete against freezing temperatures.

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Free Running
Calcium Chloride

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KEWANEE
"Bungalow Model"

Water Supply System

Now \$140



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Modern Barn Equipment

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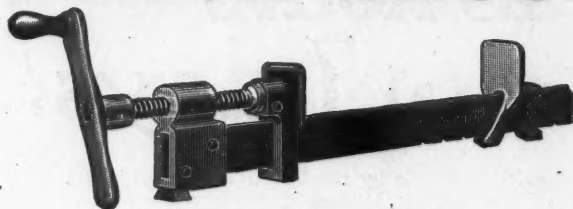
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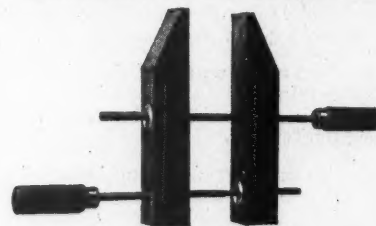
This new Tape Hook makes it possible to fasten or unfasten the tape from the sash while sash is in place. No fussing with the stop; no marring or scratches; no refinishing; no lost time.



BLACK BROS.



GLUING CLAMPS



AND HAND SCREWS

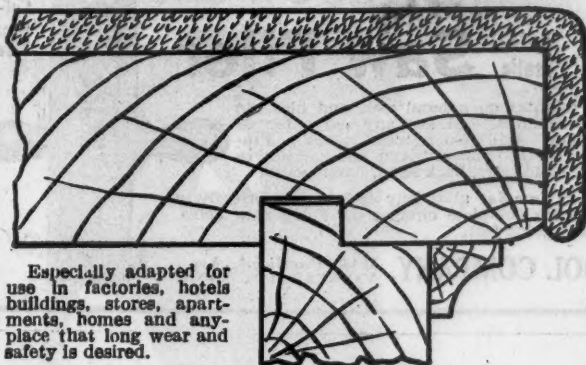
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Catalog No. 12 on request

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Manufacturers of
CLAMPS, CLAMP CARRIERS, VENEER PRESSES,
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Especially adapted for use in factories, hotels, buildings, stores, apartments, homes and any place that long wear and safety is desired.

Wright Rubber Stair Tread is long wearing, non-slippery, sanitary, noiseless and attractive. May be had with either smooth or corrugated surface to be used with or without brass nosing. Any carpenter can install it. Can be both cemented and nailed. Comes in 3 foot 6 inch and 18 inch lengths. Can be applied over old as well as new stairs.

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Write for
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In 1905—Oak Floors In 1914—Oak Floors and again In 1924—Oak Floors

Every room in the three units of the Hotel Tuller now has oak floors. The first unit was constructed in 1905, and oak floors were laid in all the rooms. Again in 1914, the second unit was similarly equipped. These installations, demonstrating through nineteen and ten years continuous service, the worth of oak floors, were their own best advertisement in inducing the owners to again select oak for the final unit, just completed.

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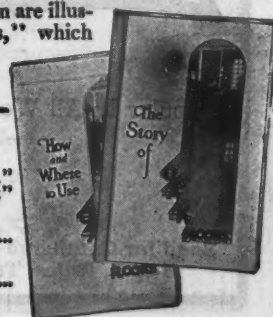
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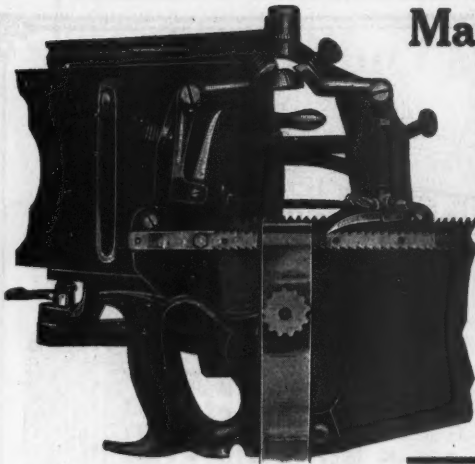
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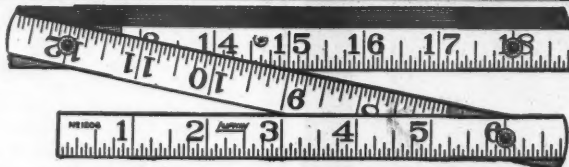
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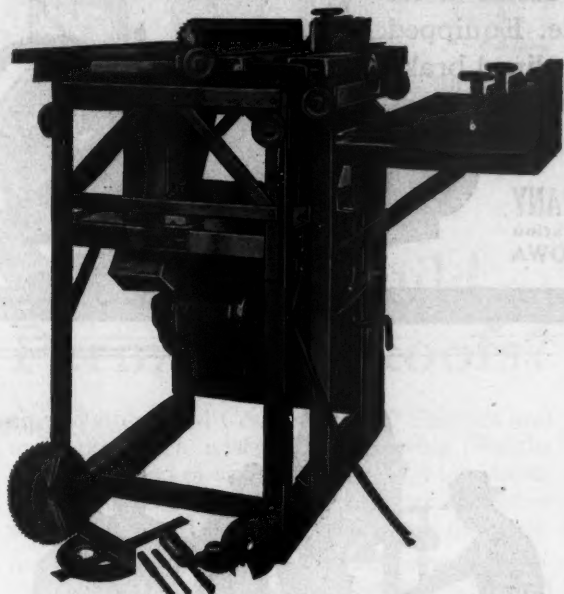
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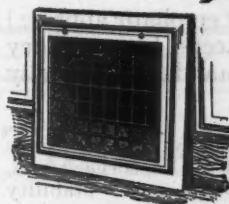
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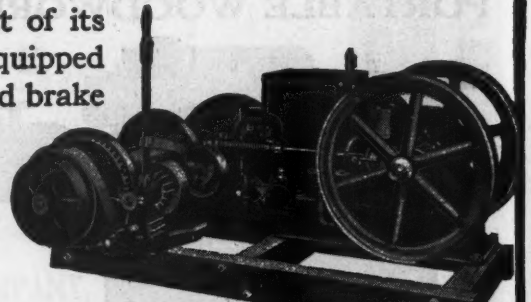
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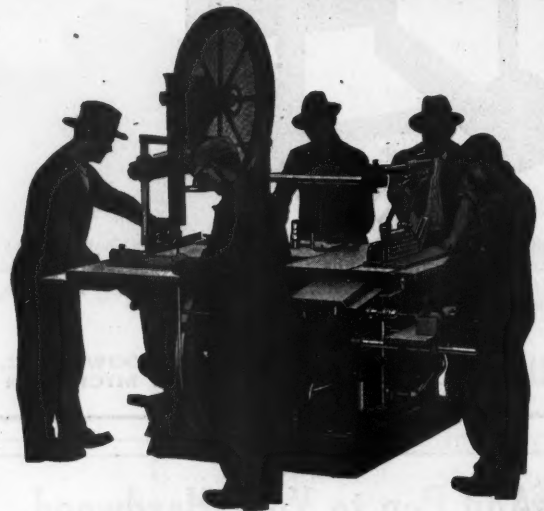
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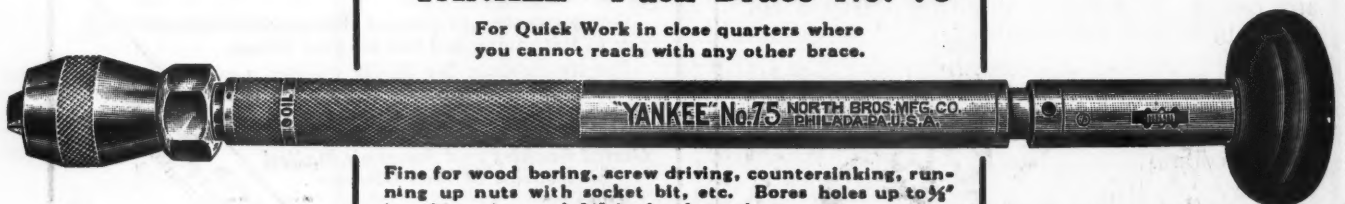
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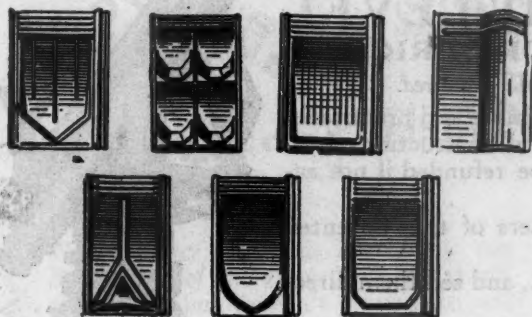


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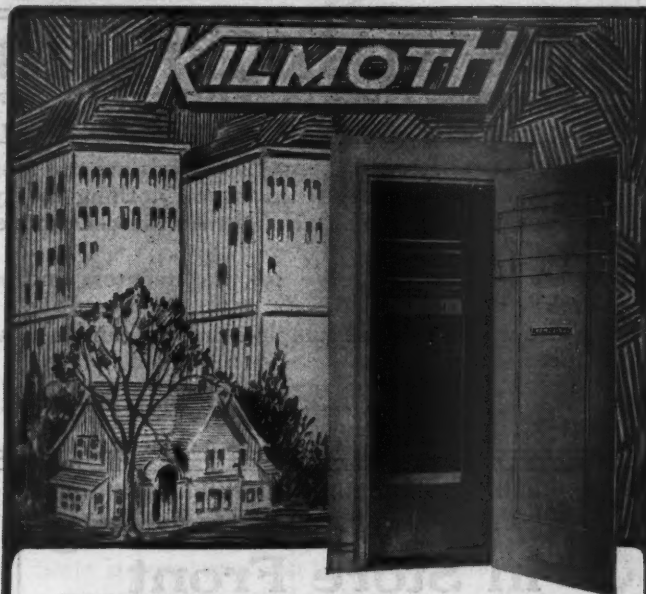
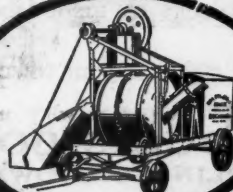
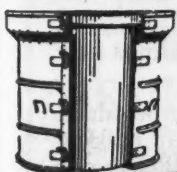
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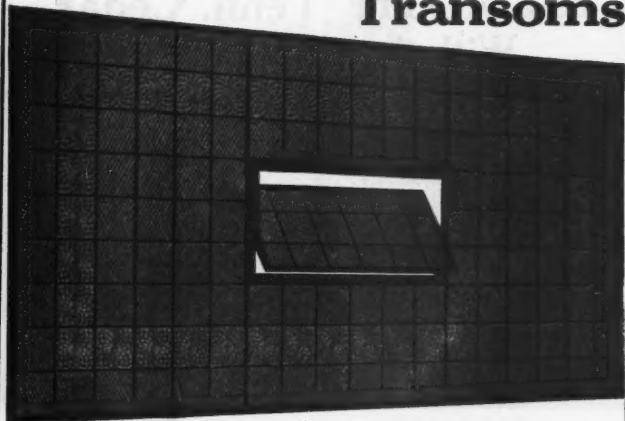
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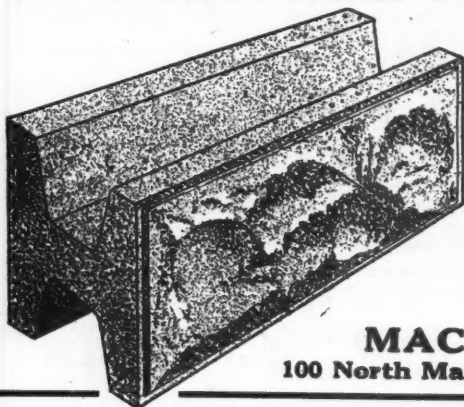
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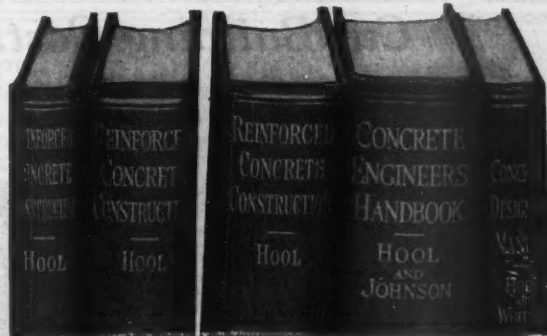
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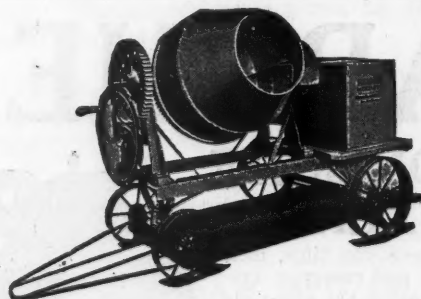
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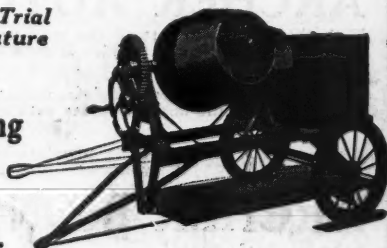
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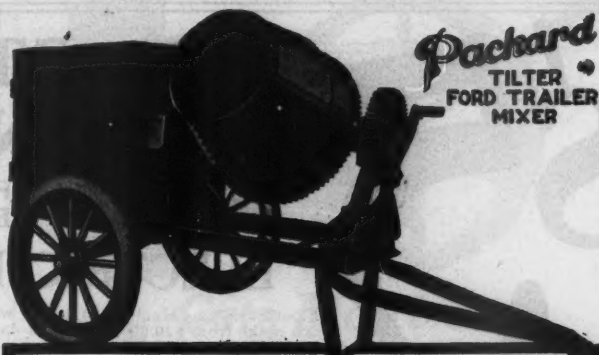
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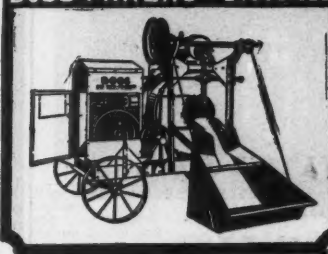
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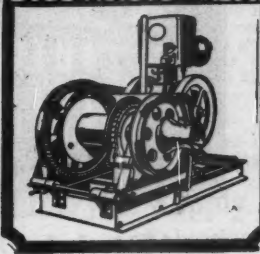
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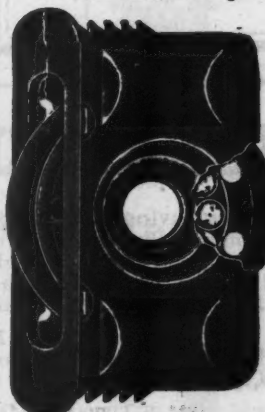
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"FISKLOCK" is made with the same care and skill as Fiske "Tapestry" Brick, famous for a generation for beauty in brick construction. The size, and the ease with which it is handled, makes "Fisklock" the most economical type of face brick.

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THE TWO-IN-ONE BRICK

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This Kimball Straight Line Elevator Drive eliminates the possibility of disalignment between the worm shaft and the motor rotor because the motor is bolted to the machine frame as an integral unit.

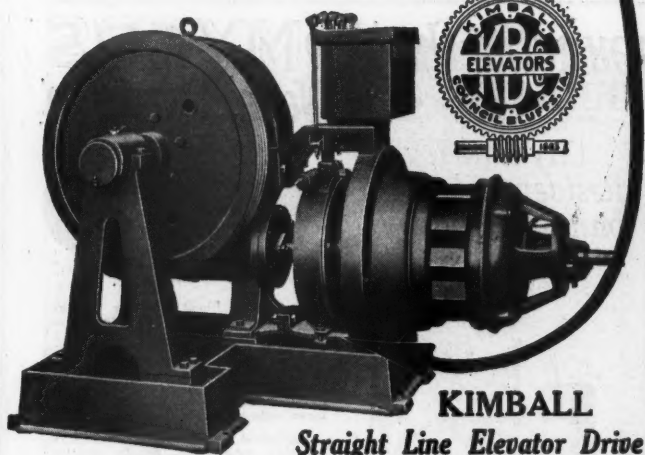
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There is a Kimball Elevator built for every requirement

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New Improved Copper Steel—Non-Breakable

Coal Chutes

with Pressed Steel Frames and Plain or Glass Doors

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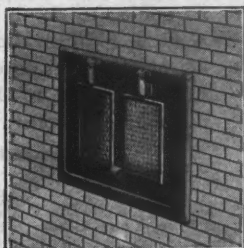
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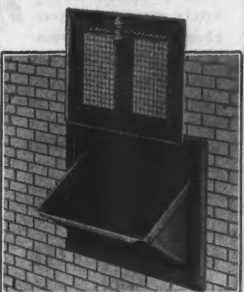
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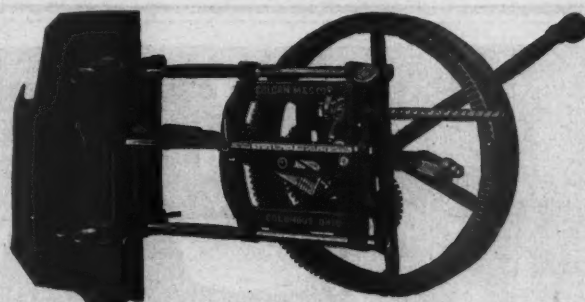
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The Champion will do those difficult and intricate mortising jobs and do them quickly and easily. It never spoils material, once it is properly clamped to stock to be mortised. In fact it makes no difference whether the wood is hard or soft, thick or thin, end wood or knotty wood, the Champion cuts clean, smooth and ten times faster than with hammer and chisel.

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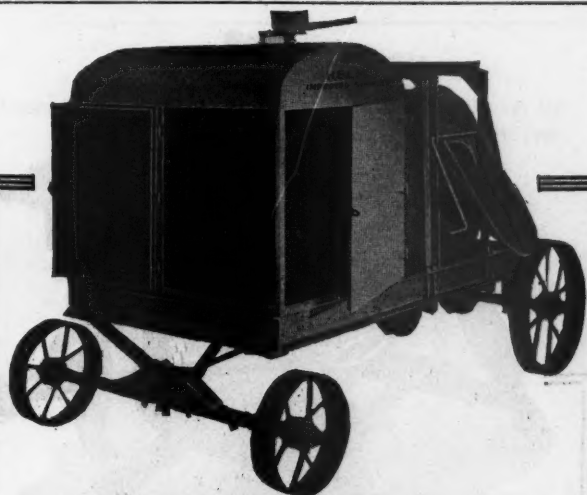
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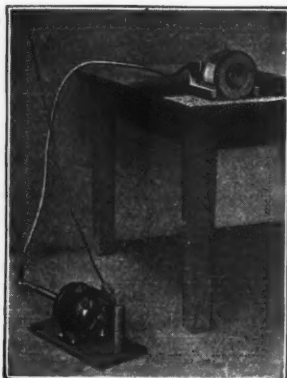
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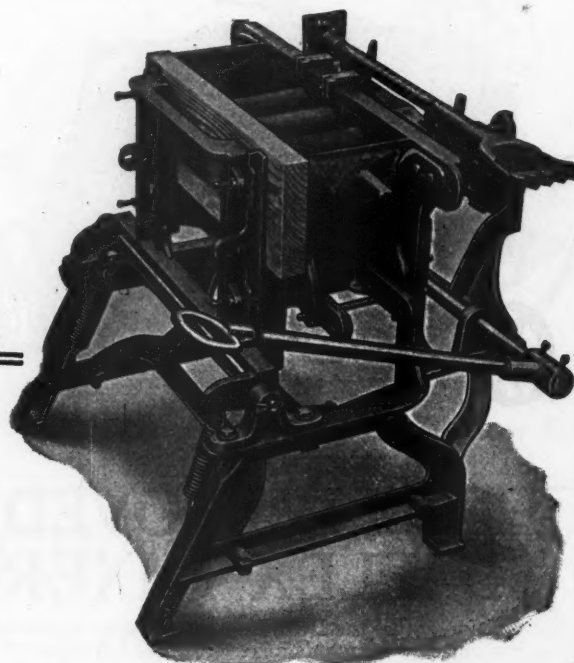
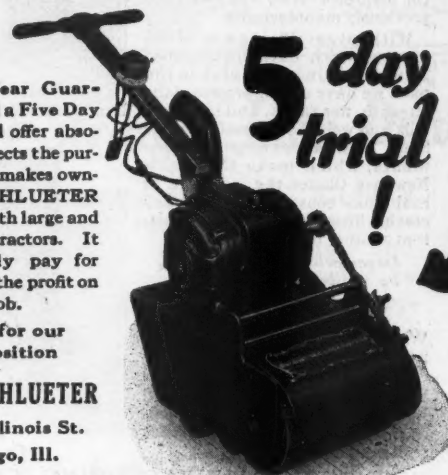
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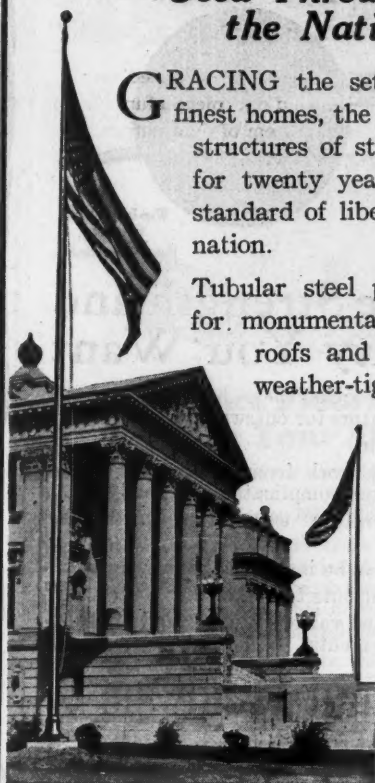
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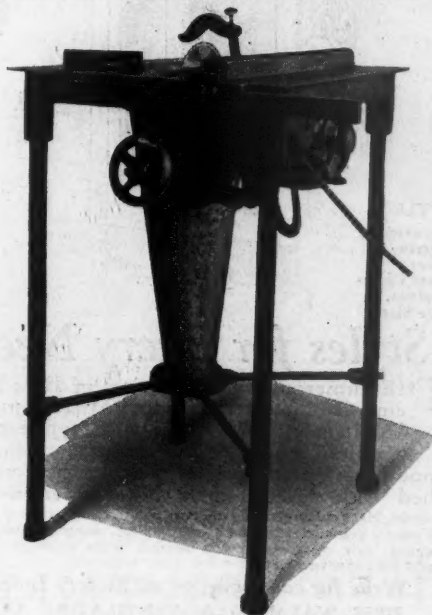
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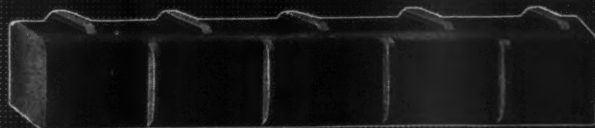
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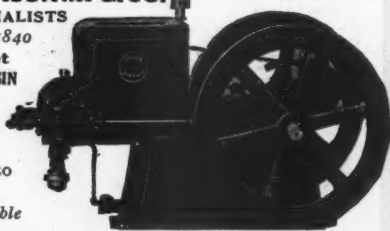
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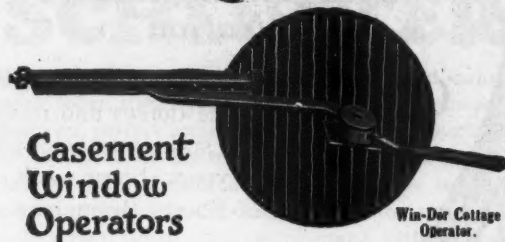
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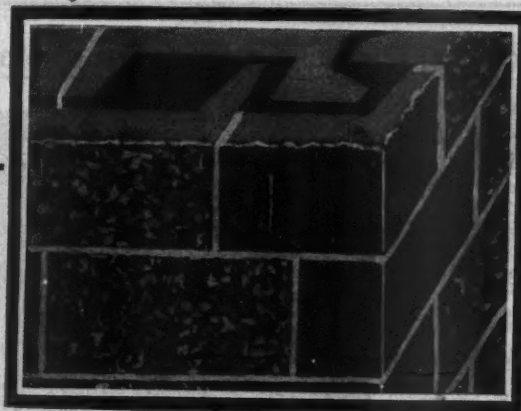
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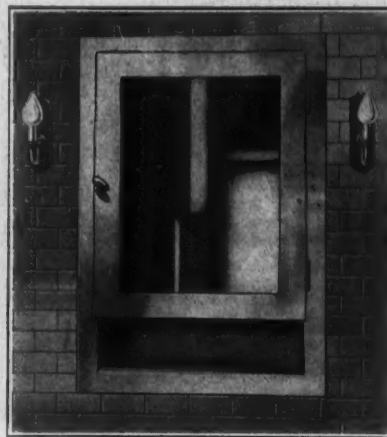


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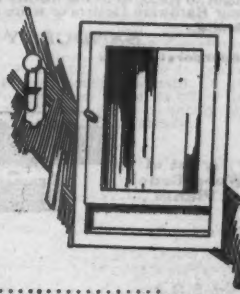
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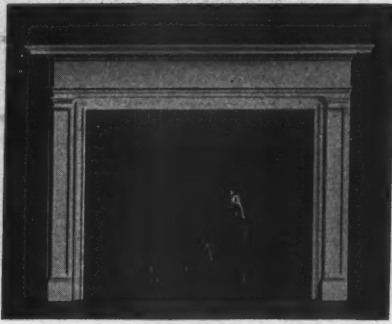
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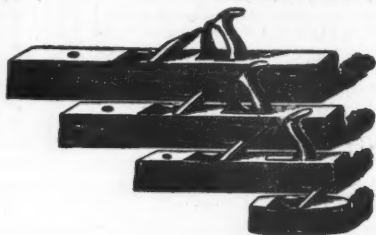


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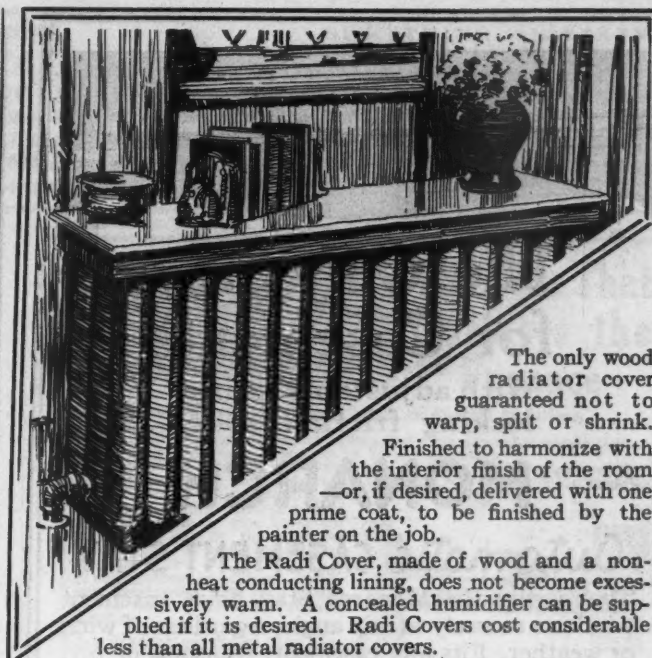
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That's why the Monarch Stay holds casement windows securely at any angle, regardless of wind or weather. Fits any casement, transoms or pivoted window, no matter how opened. Attached concealed or exposed at right, left, top or bottom.

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Get in touch with us today to be ready for the increased demand for immediate delivery. We are ready, are you?

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(Popular Priced)

The greatest value ever offered in a
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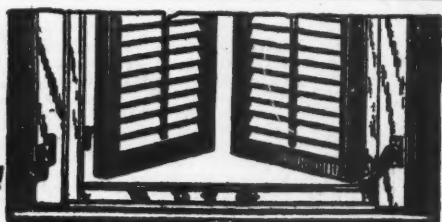
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NO. A
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KEES Metal corners are made of galvanized iron, treated to take and hold paint or stain. They make a corner joint that can't spread open—always weather-proof.

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One Piece—Pressed Steel

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Widely used on important government work and other large building operations

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Buy Only Carpenters' Tools Bearing the Trade Mark
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It is satisfactory, safe and secure.
It is stronger, heavier, and more substantial than any other smoke pipe.
It is made in sections and lengths to fit any distance.
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Cut out unnecessary expense. Install
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Pipe at once. Write for circular
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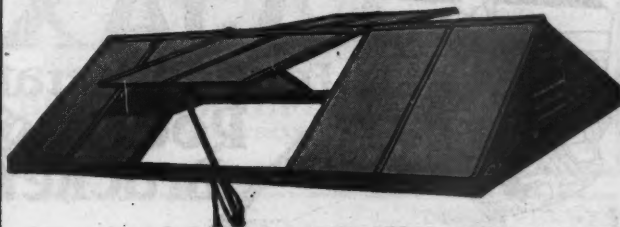
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OF
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Made of extra quality
stock, carefully in-
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perfections of braid
and finish which
destroy common cord
so quickly.



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Trade Mark, Reg. U. S. Pat. Off.

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Made of honest
cotton.

Beware of loaded
centre cord.

Ravel the end and
look at the centre.



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untarnishable Rush
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Lighting fixtures
complete the equipment of the
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There is a Rush fixture for
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Just fit the needs of
CONTRACTORS AND BUILDERS



SHELDON mixers
are used every-
where.

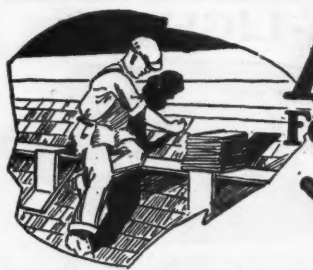
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and make a profit on
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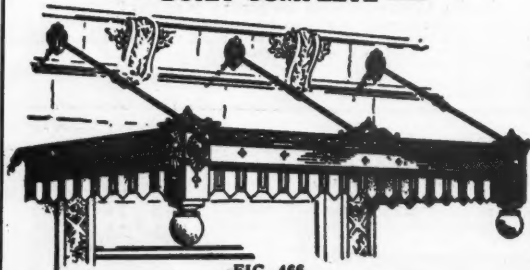


FIG. 466

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Save Time, Power and Money

Do away with hand work.

More satisfactory than any combination machine and all three cost but little more.

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Diameter of Saw 10"



13 X 17 TABLE

\$45.00

Cuts any Angle
Table Tilts to 45° Angle

Without Motor \$25.00

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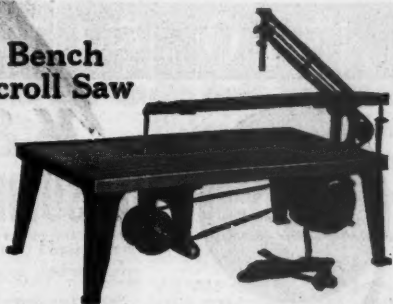
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Portable—
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Weight 80 lbs.

Will saw 2 inch
Pine at 2 3/4 feet per minute—2 inch Maple at 1 3/4 feet per minute

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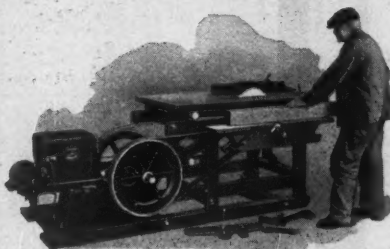
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For the use of Scrubbing,
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No Gears,
Noise or
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OUR NEW TYPE
PORTABLE ELECTRIC
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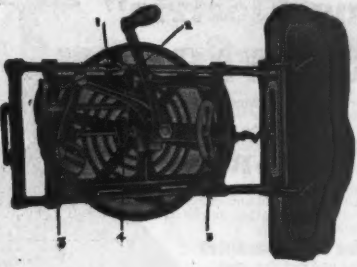
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Introduced on this furnace means a non-clean-out radiator—the greatest improvement made on any furnace in twenty years. It eliminates the possibility of a clogged or choked radiator. No cleaning out is ever required.

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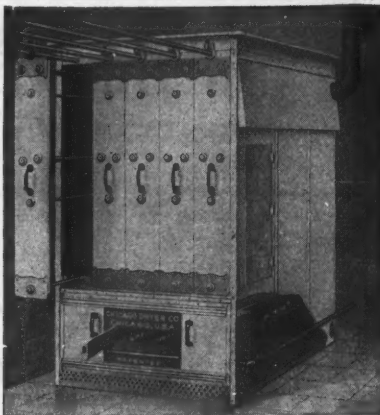
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LENGTH OF COMMON OF HIP OR VALLEY IN LENGTH	RAFTER VALLEY OF JACKS	PER FOOT RAFTER 16 INCHES	RUN PER FOOT CENTERS	RUN
FIGURES	GIVING	SIDE CUT CUT OF	2 FEET OF JACKS OF HIP OR SHEATHING IN VALLEY	RAFTER OR HIP
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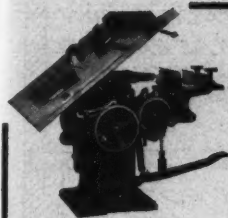
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are well made of good material, and are reliable

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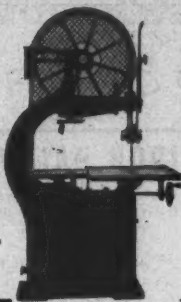
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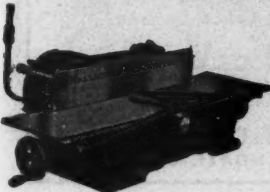
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Snaps in and out of position like a jack knife.

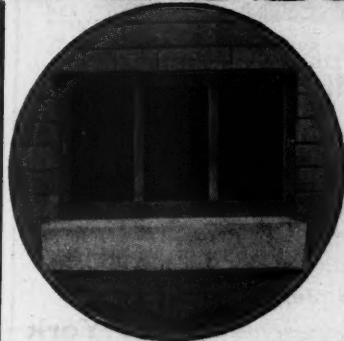
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We also manufacture welded solid steel industrial sash, Projected Ventilator Sash, Store Front and Show Windows and Skylights.

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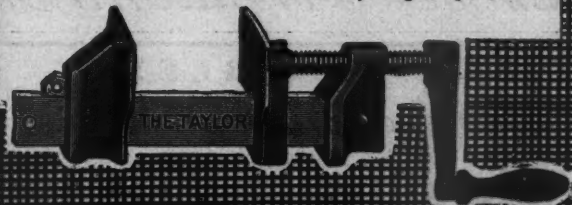
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Speed Up Your Work with the Racine Duplex Band Saw

It's the only combination wood and metal cutting portable band saw for woodworkers, pattern shops, tool rooms, metal workers and contractors.

Can be attached to any light socket. Runs as smooth as a watch.

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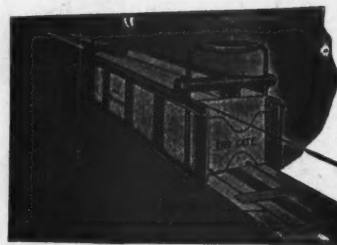
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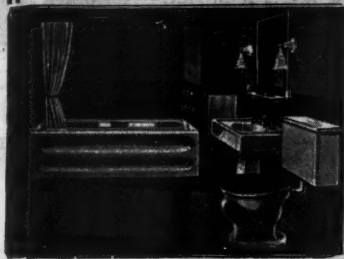
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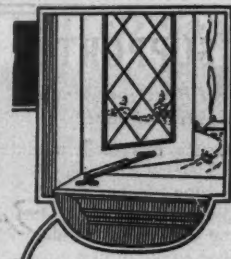
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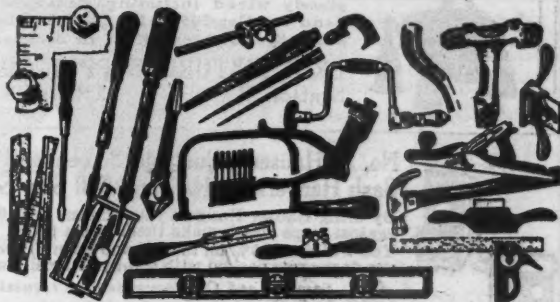


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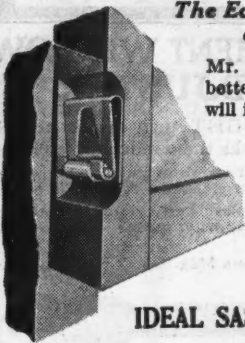
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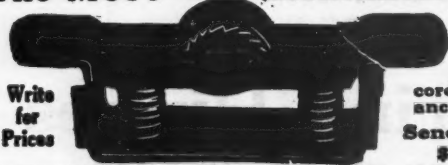
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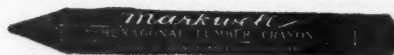
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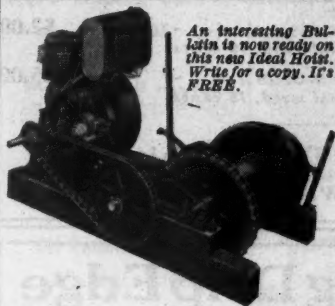
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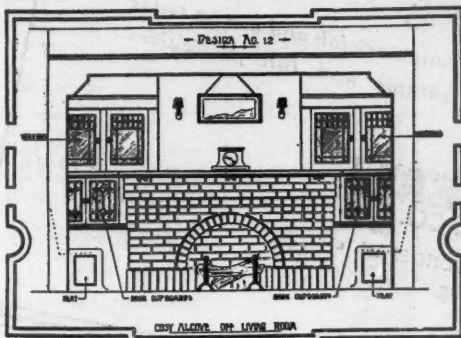
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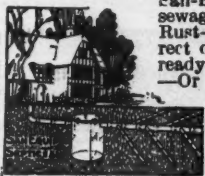
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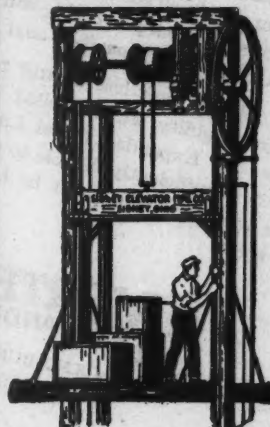
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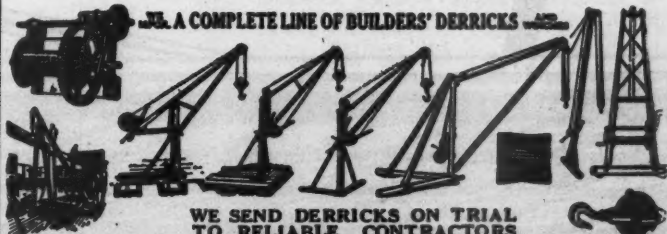
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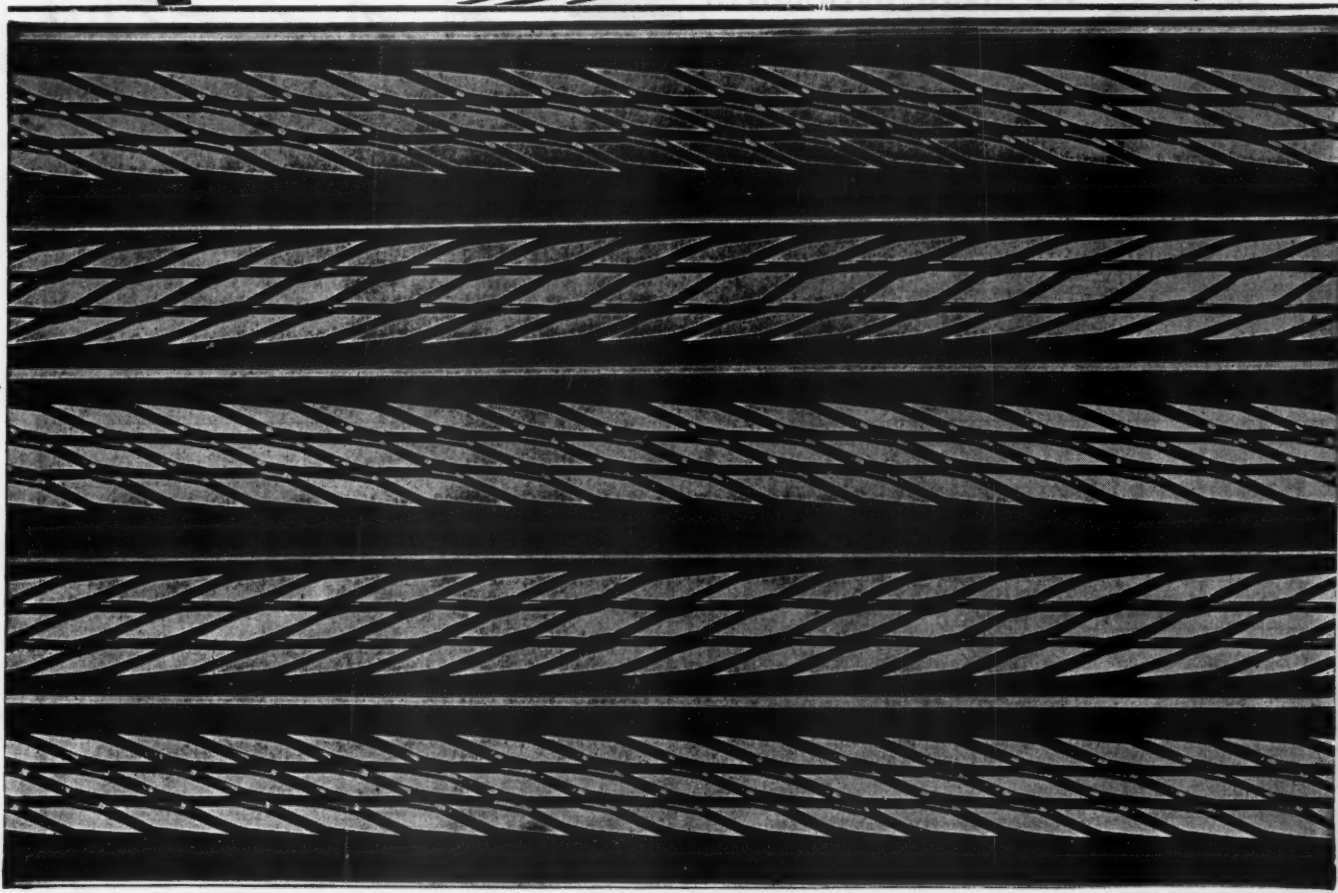
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Andersen Lumber Co.	102	Grand Rapids Hardware Co.	241	Perfection Mortiser Co.	254
Andrews Heating Co.	259	Griele, Henry W.	259	Pick & Co., Albert.	10-11
Anti-Hydro Waterproofing Co.	206	Griffith Tool Works.	243	Pittsburgh Plate Glass Co.	27
Archer Iron Works.	239	Groth, Adam.	260	Pole & Tube Works.	245
Arkansas Oak Flooring Co.	204	Groves Mfg. Co.	260	Porter Corp., J. E.	232
Armstrong Cork Co.	67	Hardin-Lavin Co.	264	Portland Cement Assn.	46
Art Stucco Materials Co.	31	Hardware Sales Co.	258	Precision Adding Machine Co.	245
Asbestos Shingle, Slate & Sheathing Co.	51	Hart & Hegeman Mfg. Co.	185	Progressive Mfg. Co.	254
Atkins & Co., E. C.	18	Hauser Mfg. Co., Martin.	253	Pullman Mfg. Co.	232
Atlas Portland Cement Co.	88	Helm Brick Machine Co.	243	Raber & Lang Mfg. Co.	237
Autocar Co.	98	Henry Furnace & Foundry Co.	242	Racine Tool & Machine Co.	255
Badger, Thos. N.	260	Hercules Corp.	207	Radford Architectural Co.	75-76-77-78
Barber Asphalt Co.	189	Herrick Refrigerator Co.	228	Radford Land Organization.	194-195
Barker & Co., R. L.	253	Hess Warming & Ventilating Co.	64-246	Ransome Concrete Machinery Co.	256
Barnes Co., W. F. & John.	253	Heston & Anderson.	253	Reid Co., A. H.	252
Barrell Co., Wm. L.	254	Highwood Dumbwaiter Co.	258	Rommel Mfg. Co.	240
Batcheller-McConnell Co., Ltd.	229	Hoffbauer Co., Inc.	250	Richardson Co., The.	191-192
Beach Mfg. Co.	253	Holbrook Co., H. E.	70	Richards-Wilcox Mfg. Co.	48
Beckman-Dawson Roofing Co.	65	Holland Furnace Co.	44	Richmond Co.	224
Beckmann Co., L.	243	Homer Furnace Co.	252	Rock Island Register Co.	235
Beckwith Co.	258	Hopson Co., W. C.	248	Roma Brass & Copper Co.	157
Bell Furnace & Mfg. Co.	254	Hornet Mantel Co.	230	Ross-Gould Co.	260
Berger Mfg. Co.	30	Hubbell, Inc., Harvey.	182-183	Royal Sales Co.	260
Bertelsen Adjustable Grille Co.	248	Hunt, O. R.	260	Ruberoid Co., The.	33
Bessler Movable Stairway Co.	229	Hussey & Co., C. G.	252	Rush Porcelain Co.	252
Betz Co., Frank S.	247	Huther Bros. Saw Mfg. Co.	238	Rybolt Heater Co.	250
Birch Mfrs., The.	225	Hydraulic Ramming Concrete Stone Machinery	247	Ryerson & Son, Inc., Joseph T.	245
Bishopric Mfg. Co.	100	Ideal Concrete Machinery Co.	211-222	Samsom Cordage Works.	251
Bitu-Mortar Waterproofing Co.	260	Ideal Sash Supporter Co.	258	Sand's Level & Tool Co.	32
Black Bros. Co.	232	International Correspondence Schools.	205-223	Sandusky Cement Co.	80
Boettcher Co.	234	International Harvester Co.	161	Sandusky Tool Co.	248
Bommer Spring Hinge Co.	196	International Steel & Iron Co.	226	Sargent & Co.	201
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Brasco Mfg. Co.	197	Johnson & Sons, S. C.	153	Schliet Mfg. Co., W. A.	230
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Brodin Pattern & Supply Co.	249	Karol & Sons Co., B.	257	Sedgwick Machine Works.	261
Brunswick-Balke-Collender Co.	38	Kaustine Co., Inc.	251	Sheldon Mfg. Co.	252
Buckles, W.	261	Kawneer Co., The.	57-58	Sidney Elevator Mfg. Co.	261
Buff & Buff.	260	Kees Mfg. Co., F. D.	250	Sidney Machine Tool Co.	211
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Cabot, Inc., Samuel.	196	Kennedy, Ralph M.	253	Smith Co., T. L.	213
Caldwell Mfg. Co.	258	Kerner Incinerator Co.	24	Smith & Egge Mfg. Co.	251
California Pine Assn.	13	Keuffel & Esser Co.	254	Smith Typewriter Sales Co.	260
Campbell Machine Co.	252	Kewanee Mfg. Co.	243	Solvay Process Co.	251
Capital Equipment Co.	231-260	Kewanee Private Utilities Co.	231	Southern Cypress Mfrs. Assn.	210
Carey Co., Philip.	175	Kilmoth Products Co.	237	Starrett Co., L. S.	216
Carney Co., The.	97	Kimball Bros. Co.	242	Stedman Products Co.	23
Carrier Adjuster Co.	220	Kimmel, G. P.	260	Steel Scaffolding Co.	218
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Casement Window Equipment Co.	209	Knickerbocker Co., The.	226	Stevens, E. A.	258
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DeVilbiss Mfg. Co.	193	Miller & Gleason.	260	Wheeling Sanitary Mfg. Co.	25
DeVitt, Paul J.	244	Milwaukee Corrugating Co.	265	White Co., Inc., David.	246
DeWalt Mfg. Co.	243	Moesch-Edwards Corrugating Co.	252	White Co., L. & J. J.	259
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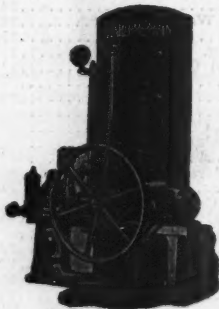
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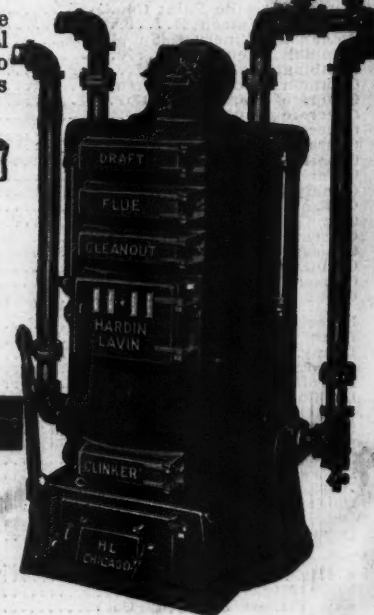
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